

International GeoScience Education Organisation

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President's Message

Dear IGEO members,

I hope that you and your family are well and in good health in these difficult days. After more than one year we are still facing the effect of the pandemic and there is still no clear idea when we will return to the life as we are used to.

On the 15 of February 2021, for personal reason, Prof. Clara Vasconcellos resigned from the IGEO Vice-Chair position. I would like to thank Clara for her time as an IGEO senior officer and for all her professional and pro-active contributions over recent years, and I wish her all the best.

On the 26 of March 2021 we held an online meeting of IGEO Officers. Included in the agenda of the meeting were:

- developing a gender balance in IGEO Officers;
- schedule for the preparation of a Code of Ethics and a Code of Procedure;
- IGEO Assembly in 2021 as the IGC in 2020 was cancelled together with the IGEO Assembly
 that we planned to hold during the IGC, we have decided to hold an online Assembly around
 October 2021. In that Assembly we will present the IGEO Code of Ethics and Code of
 Procedure, and we will discuss the vacant Vice-Chair position. More details will be provided
 soon.

If your country does not yet have an IGEO council member, please consider the possibility of offering yourself as a candidate for this position. In this way you could be the starter for a local network of Earth Science educators.

The next IESO 2021 will be held online 25-30 of August 2021, the Examination Board delivered the 4th webinar to the mentors recently. Students will have the opportunity engage in many activities, such as the Data mining multiple choice test, National Team Field Investigation presentations, the Earth System Project presentation made by international teams and the Mission to Mars international team activity, interacting with real space experts. IESO will also include complementary activities as IESO Art and Science. This is an opportunity to share some of your student poems, paintings, sculpture, rap songs, Earth science memes etc.

The IESO will include the Earth System Pledge, where students let us and their peers know how they are planning to use their knowledge and skills in the future.

This year IESO will accept up to eight students per country. If your country has not yet attended an IESO, please consider the possibility of selecting, training and registering your national school team. Here you will find the IESO Statutes with all the rules: https://www.ieso-info.org/statutes/

Many countries run national IESO selection procedures and we are glad to be able to offer the possibility of an international event to these students.

More things are happening in Earth Science education around the world as you will find described in this newsletter.

Enjoy the reading,

Roberto Greco

Exploring Geoscience across the World now available in Turkish

By Chris King

IGEO is delighted to announce the first full translation of the *Exploring Geoscience across the world* textbook – into Turkish. The translation is the work of Hükmü Orhan on behalf of the Turkish Earth Science Education Working Group, which was founded in December 2019. Professor Dr. Hükmü Orhan is a retired member of the Geological Engineering Department of Konya Technical University, Konya, Turkey and has led this tremendous translation work. As a result, teachers of geoscience across Turkey will now have access to a readable and professionally checked textbook, approved by the IGEO, the International Union of Geological Sciences (IUGS) and the European Geosciences Union (EGU).

Like the international version of the textbook and its two companions (the *Activities and questions* volume and the *Some answers* volume) the Turkish translation is available as a pdf file free-of-charge on the IGEO website at: http://www.igeoscied.org/teaching-resources/geoscience-text-books/ and http://yerbilimleri.org/index.php/kitaplar/. Hükmü tells us that he has already started work on translating the *Activities and questions* volume into Turkish.



The IGEO website already carries a partial Japanese translation and we understand that translations are being prepared in Portuguese and Spanish. A 'regionalised' version has also been prepared called *Exploring geoscience across England* that will be published soon.

But the doors are open. As Hükmü has shown, it is possible for anybody anywhere to translate the book into their own language for use in their own region. We just ask that we are sent a copy for publication on the IGEO website. In this way we can bring high quality geoscience educational materials to people across the world – in any language.

PROFESSOR BASKAR RECEIVES NEW APPOINTMENT

Singapore-based Asia-Pacific Science Center (APACSCI) has appointed Professor Baskar from Guru Jambheshwar University of Science and Technology, Hisar in an honorary position as Research Advisor of the APACSCI. APACSCI promotes the exchange of academic achievements by gathering global scientific institutes, researchers and engineers. This organization has expanded to the United States, India, Australia, South Korea, Spain, Britain and South Africa.

The IUGS Secretary General has invited Dr R Baskar from the Department of Environmental Sciences and Engineering, Guru Jambheshwar University of Science and Technology, Hisar in the International Working group to discuss a Sub Commission on geoscience collections within the IUGS Geoheritage commission.

Professor R Baskar will host the Annual General Meeting (AGM-2021; September 2021) of the Geological Society of India, Bangalore coinciding with "National Conference on Disaster Management with focuses on Geohazards" at Guru Jambheshwar University of Science and Technology (GJUST), Hisar, Haryana. GJUST will hold this conference in collaboration with National Institute of Disaster Management (NIDM), New Delhi.



Latin American Chapter of IGEO News

By LAIGEO committee

LAIGEO leading Geoeducators

Following the IGEO Project "My Earth Science Educator Story", we are looking to feature outstanding geoscience educators each week on our Social Media accounts. We want to share their experience and expertise with the next generations of geoscientists to inform and inspire them in achieving their goals.



Published Flyers on LAIGEO leading Geoeducators

Bachelor's degree thesis on Geosciences education was accepted

We are pleased to announce that the research work on Geoscience education, carried out by Juan Carlos Lozano León, a student of the Faculty of Geology at the National University of Colombia has been accepted.

The thesis degree project is entitled "Teaching of Geosciences in basic and secondary education in Colombia: A methodological proposal" and was declined first by the Committee of the mentioned institution, as being considered not suitable for career research lines. However, this decision was revaluated after we supported him with a letter in favour of the researcher, following the objectives of IGEO of strengthening, improving and disseminating Geosciences education at different levels of education. We congratulate the achievement of Juan Carlos who trusted us because it is also a great accomplishment for the network and the Latin-American region. This has shown that collective action can break barriers and open paths for other similar changes in our countries.



Post to promote this news on LAIGEO web

Dialogue on female geoeducators from Latin America and The Caribbean: Challenges and Opportunities

This was held on March 5, 2021, in commemoration of the International Women's Day in which several representatives from Latin America (Chile, Colombia, Costa Rica, Ecuador, Panama, Paraguay, Uruguay and Peru) were involved, with the special participation of Amelia Calonge, professor at the University of Alcalá, Spain.

It was a very enriching experience because the participants shared not only their professional experiences, but also their challenges as female educators in the region. They showed how they have faced issues during their academic training and while working in positions, mostly thought of as being

suitable for men in the Latin American region. Their experiences showed that despite everything, they got ahead and grew stronger.

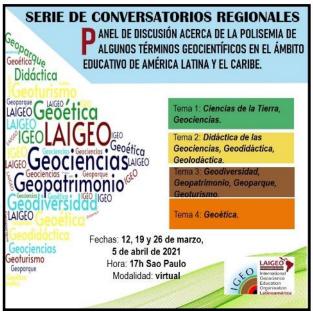
This discussion was beyond professional in its scope, as it is a subject that affects Latin American society. The experiences have shown how, step by step, the pathway is being opened for women, but needing still more effort and perseverance. In reflection, we can say that "the mountains and underground are being conquered by women" with the help of some male colleagues, such as those who attended the event.





Flyer and image of the webinar

Online Discussion Panel: "About the polysemy of some geoscientific terms in the educational field of Latin America and the Caribbean"



First Event Announcement

This event was held between March 12 and April 9, 2021, as announced in the last newsletter as a "Regional Workshop on Standardisation of Terminologies and methodologies". After discussion with LAIGEO members, it was considered particularly relevant to emphasise the discussion on the polysemy (multiple meanings) of some geoscientific terms used in education.

The panel's purpose was to unify the regional terms used in geoscience education, which due to their polysemy have different interpretations in the region. Each meeting was held in a virtual format and had the participation of specialists from research and educational centres in Latin America and The Caribbean. The event was officially inaugurated in the presence of the IGEO Council member Amelia Calonge García.

The first session was led by Hector Lacreu (Argentina) and the panellists, Gerardo Soto (Costa Rica) and José Pablo Lopez (Argentina). The concept of Earth Sciences and Geosciences were analysed, reviewing the use of these terms in time and their significance in teaching. The second session, also led by Hector Lacreu and the specialists Marcelo Bazán (Argentina) and Carlos Toledo (Peru), delved into the area of Geosciences didactics, reviewing the introduction of terms such as Geodidactics and Geolodactics.

The third session was led by César Goso (Uruguay) with the collaboration of Marcos Nascimento (Brazil) and Julio Cardenas (Peru) as panellists. It was focused on geodiversity, geoheritage, geoparks and geotourism. The presenters commented on how these terms have been progressively introduced in the geological scientific realm and their regional meanings.

The last session was on the concept of Geoethics, in terms of its incorporation in the curricula and subsequent professional development. This session was led by Roberto Greco (Brazil) and the conversational partners were: Katia Mansur (Brazil) and Carlos Toledo (Peru).

A wide range of Latin American and Caribbean professionals participated in this activity. They contributed to the general discussion through questions and by answering surveys on each session. It is expected, as a result of the workshop, that a publication will be prepared that integrates all the reflections made during the event which will be shared at the regional level.



Flyers of the LAIGEO panel

LAIGEO professionals become Commission members of IUGS-COGE

Members of LAIGEO Committe are also new members of the international commission on Geosciences Education of the International Union in Geological Sciences (IUGS-COGE).

Maria Jesus Bravo Perez

MsC in Teaching for Higher Education. Leading numerous science outreach initiatives in the search for innovative teaching methodologies. IUGS / IGEO field Officer since 2020, IGEO Council member and part of the founding team and the current LAIGEO committee. Organizing committee member of the 1st Olympiad on Gelogy in Chile and scientific advisor to the Litoral Bio Bio Geopark Project.



Sandra Villacorta Chambi

PhD in Research, Modelling and Environmental Risk Analysis, MsC in Sustainable Use of Mineral Resource, BSc in Geological Engineering, Research Fellow at Charles Darwin University (Australia). Former coordinator of the Peruvian section of the IAPG – International Association for Promoting Geoethics. Council member and part of the founding team and the current LAIGEO committee.



International Earth Day Latin American Events & Activities

A series of events are being organised in the region which have been announced on our website and RRSS.



Argentina

History of knowledge of the Earth's interior: April 22, 2021. Olavarría Educational Information, Training and Research Center. http://bit.ly/interiorterrestre

Brazil

Geodia: April 24, 2021. Brazilian Association for the Defense of Geological Heritage,link: https://www.ageobr.org/geodia

Costa Rica

Celebration for Earth Day at the University of Costa Rica. Via Facebook Live, link: https://www.facebook.com/events/468520551132985/

Mexico

TierraFest2021 Festival: April 19- 24, 2021. Planeteando, link: www.planeteando.org/tierrafest

Peru

Cycle of Virtual Conferences for the International Day of Mother Earth "Transforming the geoscientific database". April 22. link: https://www.facebook.com/INGEMMET

CHANGE OF PARADIGM IN GEOEDUCATION AND GEOLOGICAL DIVULGATION IN TIMES OF COVID 19 IN BOLIVIA

By Wilfredo Ramos Collorana*, Ph. D.

* Council IGEO Bolivia

COVID 19 in Bolivia began in March 2020, affecting the country's health system which was not prepared for such a pandemic. There was no health education because of high population densities in big cities and the countryside, for this reason the population was and is still being affected. Geoscience education in Bolivia is carried out in the university system and there are three universities where geology is taught "Universidad Mayor de San Andres" in La Paz city, "Universidad Autonoma Tomas Frias" in Potosi city, "Universidad Tecnica de Oruro" in Oruro city. The dissemination of geology is carried out through different organizations, but mainly by the "Colegio de Geologos de Bolivia" (CGB). The education of the Collegue and schools changed from classroom to virtual classes because of the pandemic.

A major difficulty is that the internet signal is not well distributed and its cost is higher than in neighboring countries. Another major difficulty was the access to internet by society and helping people to learn how to handle the devices and different programs. A large proportion of university and school students did not even have cell phones.

The paradigm shift from face to face to virtual classes was complicated due to the above-mentioned background. Technology had been expected to be used gradually, but COVID 19 made this change quicker.

Bolivian universities did have a virtual system, but since classes were face-to-face, it was not used frequently. Since the pandemic, there has been a rapid change, courses have been conducted for teachers of platforms such as Moodle, Meet, Zoom, Google and others.

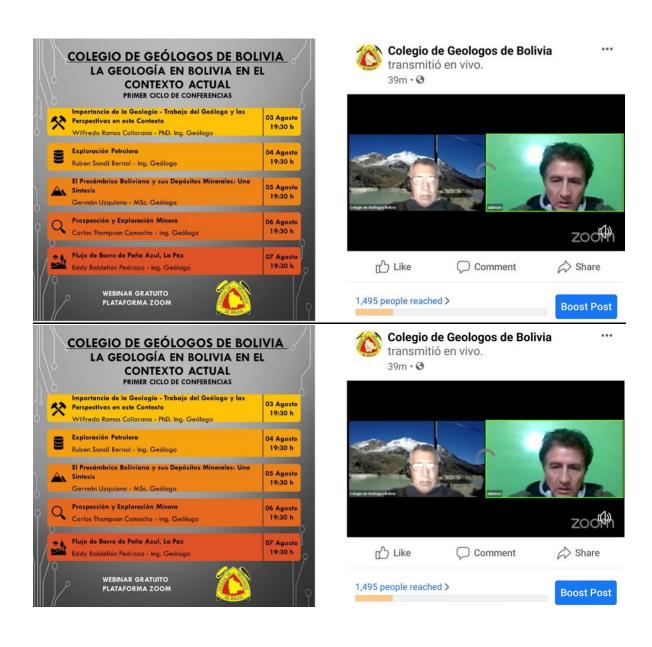
At the Universidad Mayor de San Andres, institutional accounts were migrated to Google accounts for both teachers and students. Most of the students had no problems in the management of programs and equipment, as they adapted easily. The change in the teachers was from lesser to greater degree and currently each teacher is managing very well.

Virtual classes in geosciences in Bolivia (figure 1), all practical classes, evaluations are done through virtual fields, established by each university. The paradigm shift has its benefits, due to the extensive information available on the internet, now is the time to acquire knowledge for practical application. Another benefit is that students must take an active part in the teaching-learning process and that teachers must find alternative methodologies for teaching.

The teaching of geology through "Colegio de Geologos de Bolivia" was hampered by the pandemic. The courses and congresses that were planned in principle had to be suspended due to COVID 19.

Webinars have been held on different geological topics where the participation even exceeded an average of 1000 participants, as they were transmitted through the Zoom program and official Facebook of the "Colegio de Geologos de Bolivia" (Figure 2).

Education in Bolivia quickly accommodated to the paradigm shift from face—to-face practices but we must continue to be creative to implement alternative methodologies using current technology. The vaccination process in Bolivia is slow and for this reason it is estimated that virtual classes in geosciences will be continue to be taught until acceptable conditions return to normal.



The National Earth Science Teachers Association (NESTA)

https://nesta.wildapricot.org/ By Dr. Richard M. Jones

These are dynamic times to be living on planet Earth, and dynamic times to be teaching about our planet Earth. In the past few decades, the Earth Sciences have grown from infancy to the most dynamic and societally-relevant field of science. Recent events – earthquakes, tsunamis, hurricanes, tornadoes, nor'easters, mudslides, volcanic eruptions, water supply problems, and much more – demonstrate the necessity to understand Earth Science in order to create an informed citizenry capable of making good decisions when impacted by a natural disaster. For Earth Science educators, this requires the ability to remain current with the changes in the Earth Sciences as a field of study.

Since 1983, The National Earth Science Teachers Association [NESTA] has served our membership with the vision to "...provide leadership and effective support to teachers so that all K-12 students receive quality Earth and Space Science Education" and mission "to facilitate and advance excellence in Earth and Space Science Education." We seek to inspire all students to become stewards of our Earth, and to encourage personal choices and public policies informed by scientific data. NESTA is a non-profit organization which supports K-12 educators in their efforts to mentor, guide, and instruct all students. We feel that our future depends on this. Our slogan is: One Earth, Our Future.

To achieve our vision, facilitate our mission and support the intent of our slogan, our members receive many benefits such as our quarterly journal, The Earth Scientist; our monthly email newsletter, the NESTA E-News; occasional Special Alerts with electronic updates about resources and opportunities; Share-a-thons and Rock Raffles at NESTA area and national conventions; Earth and Space Science Day lectures by leading geoscientists at the NESTA National conference; and field trips to geologically interesting locations. NESTA leaders are often called upon to provide a nationally-recognized voice speaking to the future of Earth Science education at meetings of other scientific and school leadership organizations. NESTA collaborates with federal agencies and organizations seeking to advance geoscience education and literacy. As the leading national organization representing K-12 Earth and Space Science teachers, membership in NESTA is a must to teachers seeking to promote geoscience education nationally and take part in leadership at the national level. If you are not already a member of NESTA, join NESTA today! https://nesta.wildapricot.org/join.donate

vGIFT 2021

by Michael J. Passow with Chris King

Every year at its annual General Assembly, the European Geoscience Organization (EGU), organizes a "GIFT Workshop" GIFT means Geoscience Information For Teachers. This year, due to the pandemic, the GIFT Workshop, like the rest of the EGU General Assembly is being held virtually. Nevertheless, vGIFT 2021 includes 192 participants from 36 countries on 6 continents who are joining sessions that start early afternoon or mid-morning Central European Standard Time, and any times from early morning to late evening in the home countries around the world.

This year's theme is "Water in the Solar System. Research scientists from many institutions have volunteered to present summaries of their field to the participants.

Our program includes:

- A welcome from the EGU President **Alberto Montanari** from the University of Bologna.
- A Monday session (19th April) set the water scene, with contributions from Alessandro Morbidelli of the CNRS, Observatoire de la Côte d'Azur, Nice, France on why we have water on Earth at all and from Clinton P. Conrad from the Centre for Earth Evolution and Dynamics University of Oslo, Norway on Earth's changing sea level. These are followed by the first part of a workshop on 'Intense rainfall in the Mediterranean area' led by Fabrice Mourau of the Edumed Observatory, University Côte d'Azur, France.
- A Wednesday session (21st April) focused first on 'Floods' with Guenter Bloeschl from the Centre for Water Resource Systems, Vienna University of Technology, Austria before moving on to mineral water and its secrets, presented by Carla Sofia Rocha of the University of Lisbon, Portugal. These are followed by the second part of Fabrice Mourau's workshop on rainfall. During the morning we will also hear from Solmaz Mohadjer of the Earth and Environmental Sciences department in the University of Central Asia, Tajikistan about the EGU paired teacher/scientist video initiative.
- On Friday afternoon (23rd April) introduced participants to the floating observatory studying arctic climate by Rainer Lehmann of Polar Educators Germany at the European University Flensburg, Germany and Marylou Athanase from the Alfred Wegener Institute, Bremerhaven, Germany. We will then consider the issue of microplastics in rivers, introduced by Jamie Woodward of the Department of Geography, University of Manchester. Chris King, EGU Committee on Education (CoE) Chair, will offer the first part of a 'hands on' workshop using Earthlearningideas focused on water, whilst Teresita Gravina of IC Da Vinci-Lorenzini, Caserta, Italy and CoE member will introduce us to Scientix.
- A Saturday afternoon session (24th April) began by a presentation on the vital importance
 of water in the Mediterranean area presented by Elena Xoplaki of the Justus Liebig
 University of Giessen, Germany before considering how storms work in the presentation
 by Colin Price of the Department of Geosciences at Tel Aviv University, Israel. The second
 part of the Earthlearningidea workshop on water was presented by the EGU Field Officers,
 and we heard from Terri Cook about how EGU manages its media and communications to
 the world, including teachers.
- The Tuesday session (27th April) featured Valérie Masson-Delmotte from the LSCE, Gifsur-Yvette, France who showed how the Intergovernmental Panel on Climate Change researches and reports on this vital topic. Then Laurent Bopp of the École Normale Supérieure in Paris, France explained the role of carbon in climate change. Later Éva Hartai of the Institute of Mineralogy and Geology at the University of Miskolc, Hungary, introduced us to the 'ENGIE' project to empower girls to become geoscientists and Kostas

Kourtidis of the Democritus University of Thrace, Xanthi, Greece and CoE member presented a workshop showing how teachers can use EGU's Imaggeo photo/video database.

• The final session (29 April) examined the whole solar system with Stephanie Werner from the Centre for Earth Evolution and Dynamics of the University of Oslo in Norway describing what is known about water across the whole system, whilst Elena Pettinelli from the University of Roma TRE (Italy) discussed the search for water on Mars. The vGIFT workshop ended with a virtual outdoor session that you would have actually experienced out of doors, if you had been able to join us in Vienna, and a brief introduction to the Antarctica 2.0 project presented by the Clement Astruc-Delor 2.0°C Association, before our final vGIFT wrap up.

The brochure is available at Microsoft Word - vGIFT 2021 brochure.docx (egu.eu). Video versions of the vGIFT 2021 presentations are available at EGU - Education - Geosciences Information For Teachers (GIFT) - workshops - Geosciences Information for Teachers virtual workshop (vGIFT) 2021.

Several of the IGEO Senior Officers have been involved with organizing and presenting GIFT Workshops for many years.

Status of Education in Nepal in COVID Pandemics

By Pawan Kumar Acharya

After the appearance of COVID-19 pandemics in Wuhan China, the first case was confirmed in 23 January 2020 in Kathmandu in a person who travelled from Wuhan, China. The second case was confirmed two month later on 23 March in a person who had travelled to Nepal from France through Qatar. The first case of local transmission was confirmed in 4 April in Kailali district of Nepal. The first death was reported in 14 May.

When the two confirmed case were reported from the Reverse Transcription Polymerase Chain Reaction (RT-PCR) tests, the Government of Nepal issued a nationwide lockdown from 24 March to 21 July 2020, prohibiting domestic and international travel, with border closures, closure of educational institutions and non-essential services in the first stage. The lockdown was later eased on 11 June 2020 in a sequential phase based on the priority of the services and the situation developing in different sectors.

Analyzing the international scenario of COVID pandemics, the Government of Nepal has requested completion of the final examinations at the declared time But the Secondary Education Examination (SEE) that is held in class 10 was cancelled after analysis of the pandemic situation. All other examinations of higher level up to University level were also postponed. These examinations were conducted in most of the educational institutions after many months, some institutions took examinations after 9 months. In few institutions and university and the schools located in urban areas, online teaching practice was established. The prohibition imposed for different activities was eased after November 2020. The school, universities and other sectors were run applying the safety measures, as the COVID was not totally eradicated. Guest lectures from any organizations, institutions, and specialists were not allowed by many schools and universities. In the first week of April, the second wave of COVID-19 pandemic began to grow in India, with the effects seen in the its neighboring country, Nepal. The pandemic is growing day by day. So, the Government of Nepal has again decided to run the school of urban area through online methods. In the coming days, education sectors are likely to be more affected if the pandemic grows exponentially.

The student at school level are not familiar with online practice, which does not seem to be very productive. There are difficulties in management regarding the running of classes through physical appearance, which might oblige the educational institutions at school level to shut down, as in the case of first wave of COVID-19 as many areas lack proper internet facilities.

The activities of IGEO could not be carried out in Nepal, due to overwhelming effect of the COVID-19 pandemic. Due to the unfamiliarity of school level student and teachers in online teaching practices the online activities are also difficult in the current situation. The field activities related to geoscience are almost impossible in this situation.

The place of Geology in the European educational systems

Professor Asimina Antonarakou - National and Kapodistrian University of Athens, Greece
The Head of the research team



The Department of Geology and Geoenvironment of the National and Kapodistrian University of Athens has conducted research regarding Geology in education on several occasions. We are excited to support research on good teaching practices and techniques, we organize workshops for science festivals and try to use any means possible to promote Geology teaching in our country, Greece.

Recording the ways geology is taught in other countries has always been a high priority project for the Department. We have recently become members of the IGEO and this has provided us with the opportunity to reach out to more people with the same ambition – to improve the status of Geology in education.

At this point we would like to ask for the contribution of our **European** colleagues. We have prepared a questionnaire that we would like you to complete. It would be great to receive answers from as many European countries as possible.

The questionnaire can be reached through this link: https://forms.gle/H9tWk89cBWPdjHDX6
The main objectives of our research are to record how geology is taught in different European countries, what kind of studies and training it takes to become a geology teacher and establish a connection, should there be one, between the geological evolution of a country and the status of geology teaching in their educational systems.

We would be more than happy to publish the research results in the IGEO site, once we have processed the data compiled by the complete questionnaires.

Thank you in advance for your contribution! We are thrilled to be part of this global company of geoscience educators!