

International Geoscience Education Organization (IGEO)

IGEO aims to promote geoscience education at all levels, to work for the enhancement of quality in the international provision of geoscience education and to encourage all developments that raise public awareness of the geosciences, in particular amongst young people.

Council meetings are held every two years during the GeoSciEd conferences (held every four years), and during the International Geological Congresses (alternating every four years). The next council meeting will take place during the 7th GeoSciEd, September 5-9, Hyderabad, India, 2014.

In order to meet its aims IGEO's work currently focusses on the following major activities that will be described in more detail in this report.

Content

1. Progress of the 7 th International Conference on Geoscience Education – 7 th GeoSciEd (India)	2
2. The growing International Earth Science Olympiad (IESO)	3
2.1 Short Report on IESO 2013, 11-19, Mysore, India.....	3
2.1.1 IESO: The competition	3
2.1.2 IESO: Coordinating Committee and Advisory Board	4
2.1.3 Decisions made by the Jury during IESO 2013	5
2.1.4 News from the Commissions.....	5
2.2 Preparations for the 8 th IESO from 26 July – 5 August 2014 (Vermont, USA)	6
2.3 Future IESO Editions	6
3. International Syllabus on Earth Science Education	6
4. Public relation activities and communication strategies within the IGEO/IESO membership.....	7
4.1 General IESO Website	7
4.2 Facebook-Trial	7
4.3 Internal Communication Platform-Trial	7
5. Resourcing Future Generations.....	7

1. Progress of the 7th International Conference on Geoscience Education – 7th GeoSciEd (India)

The quadrennial International Conference on "Geoscience Education" (GeoSciEd) has been organised since 1993 to focus on the crucial role played by earth sciences in our day-to-day lives and how to educate the population to understand this role. The seventh in the series will be organised during September 5-9, 2014 at Hyderabad, India (<http://geosciEd2014.webs.com/>). The organizing secretaries are:

- Prof. R. Shankar, Department of Marine Geology, Mangalore University, Mangalagangothri - 574199 Mangalore INDIA, Tel: (0091)-824-2284465, Cell: (0091)-99168-23885, Email: rshankar_1@yahoo.com.
- Prof. A.C. Narayana, Centre for Earth & Space Sciences, University of Hyderabad, Hyderabad - 500046, INDIA, Tel: (0091)-040-23132668, Email: acnes@uohyd.ernet.in.

GeoSciEd offers a suitable platform for geosciences teachers and geosciences education researchers to share their views and experiences on a wide range of earth science education at all levels including public awareness of the discipline. This is particularly important for participants from Developing Countries where earth science may be taught in a disorganised way; earth science topics being included in subjects like general science, geography and even social studies.

Conference themes are:

- Geoscience Education Research
- Computer-aided Teaching – 1: Schools, 2: College and University
- Geoscience Teaching Methodology
- Good Field Work Practices
- Geoscience Educational Resources: Web as a Repository
- Geoscience Syllabus: Present and Proposed – Schools
- Public Awareness of Geosciences: 1: Geotourism, 2: Geoparks
- Miscellaneous
- Other relevant sessions that may be proposed by geoscience educators

The conference will consist of: (1) Paper presentations (oral and poster); (2) A one-day geoscience educational field trip; (3) Pre- and post-conference field trips to geologically interesting places across India; and (4) Workshops for teachers on aspects of geosciences education.

Preparations are afoot regarding publicity and organisation of the conference. The first circular will be issued by the end of October 2013. The registration fee is 400 Euro. Participants from the Third World often find it difficult to muster enough funds for their air travel, registration and daily expenses during GeoSciEd conferences. The benefit of such conferences is often of more value to these participants than

anyone else. Therefore, a generous grant from IUGS will ensure the participation of a large number of attendees from Developing Countries.

2. The growing International Earth Science Olympiad (IESO)

During IESO, gifted secondary/high school students from all over the world come together. These have been carefully selected at national level and are accompanied by mentors, guest students and observers. The International Jury, consisting of mentors and observers who are teachers, geoscientists as well as science educators, discuss and finalise the theoretical and practical tasks for the competition. During the Olympiad there is the opportunity for different approaches to geoscience education throughout the world to be discussed by the major protagonists of geoscience education. Thus IESO is a unique opportunity to identify best practice approaches from all over the world.

2.1 Short Report on IESO 2013, 11-19, Mysore, India

2.1.1 IESO: The competition

International Earth Science Olympiad (IESO) is a flagship activity of IGEO that has been organized in different countries since 2007. The 7th IESO was organized at the Infosys Campus, Mysore, India during September 11-19, 2013. Ninety Students, 11 Guest Students, 44 Mentors and 42 Observers from 27 countries participated in the event.

The International Jury prepared a theory and a practical test that formed the basis of the competition.

In addition, to promote international co-operation and forge bridges of friendship among young, talented students across the world,

- The International Field Team Investigation was conducted by students at seven sites located in and around Mysore city. Each team was composed of students from different nationalities, with diverse cultures and varied backgrounds.
- The 7th IESO in India took another step towards promoting co-operation and friendly relations by introducing a new activity called the "Earth System Project". Here too, groups of mixed students researched the given topic (the Indian Monsoon) and prepared posters based on their findings and understanding of this important phenomenon which involves all the spheres of planet Earth.
- The participants visited six local schools and interacted with the staff and students there, exchanging information and ideas about the curriculum, teaching methods and problems in education.
- There were sight-seeing and cultural programs to energise and entertain the participants as well.

Ten Gold, 18 Silver and 33 Bronze medals were awarded to the highest achieving students. Besides these, Best Performance Awards were also given in the categories of Geosphere, Astronomy and

Atmosphere and Hydrosphere. For the International Team Field Investigation (ITFI) and Earth System Project, Gold-, Silver- and Bronze-ITFI Team Awards and Gold-, Silver- and Bronze-Earth System Project Awards were presented to the deserving teams.

Lack of adequate financial resources has been a stumbling block to the effective participation of developing countries, particularly from Africa, over the years of the IESO competitions. The grant of USD 5,000 kindly made available by the IUGS helped in greatly enhancing the participation of Developing Countries in this year's IESO. The grant was utilized to waive the registration fee for the national teams of four countries. This ensured the participation of a total of 20 persons in the 7th IESO (see Table 1).

Table 1. Participation of Developing Countries supported by the IUGS funds

Sl. No.	Country	Details of participants	Total no. of participants
1	Malawi	1 Observer	1
2	Nigeria	2 Mentors,1 Observer and 4 Students	7
3	Sri Lanka	1 Mentors,1 Observer and 4 Students	6
4	Bangladesh	2 Mentors and 4 Students	6
TOTAL	4	5 Mentors, 3 Observers and 12 Students	20

2.1.2 IESO: Coordinating Committee and Advisory Board

A combined meeting of the Coordinating Committee and the Advisory Board took place on 11.9.2013 in Mysore (Infosys Campus, ILI Building) from 10-11:30 pm. Three major challenges concerning the preparation of the present as well as future IESO editions were identified and discussed:

- (1) Finding financial support
- (2) Attracting further participating countries
- (3) Quality checking of test exercises

A range of ideas was put forward to the responsible committees. The Coordinating Committee is the IESO body responsible for ensuring quality and consistency over time. The membership has been adjusted for the forthcoming IESO 2014 according to the statutes. The Coordinating Committee for the IESO 2014 which will take place in Vermont, USA is:

- Sellez-Martinez (Argentina, Organiser 6th IESO)
- Shankar (India, Organiser 7th IESO)

- Taylor (USA, Organiser r 8th IESO)
- Nesterov (Russia, Organiser 9th IESO)
- Kumano (Japan, Organiser 10th IESO)
- Hisada (Japan, Guest)
- Hlawatsch (Germany, Chair: IESO Advisory Board)
- Orion (Israel, Chair: Syllabus Commission)
- Gerard Bonheure (France, Chair: Test Commission)

The members elected Prof. Kumano to be the Chair of the Coordinating Committee for IESO 2014.

Furthermore, Hendra Amijaya has been appointed as a new member for the Advisory Board. The members of the IESO Advisory Board now are: Amijaya (Indonesia), Cano (Philippines), Re Carneiro (Brazil), Chun-Yen Chang (Taiwan), Ian Clark (Australia), Kumano (Japan), Orion (Israel), Selles-Martinez (Argentina), Song (Korea).

2.1.3 Decisions made by the Jury during IESO 2013

Two proposals for changes in the IESO Statutes were received by the Chair, Coordinating Committee (Prof. Shankar) on 19th July 2013. The issues were discussed during the third Jury meeting and votes carried out.

Proposal 1: Regarding the age limit for participation in IESO.

After considerable discussion, the matter was put to vote to decide between Option 1 (... *should not have been born before July 1, X-18, where X is the year of the Olympiad.*) and Option 2 (... *should not have been born before July 1, X-19, where X is the year of the Olympiad.*). Seventeen countries voted for Option 2 and six countries for Option 1. Hence, the **old sentence** of the Statutes:

"Participants should not be older than 18 years on July 1st of the year of the Olympiad."

will be replaced by the **new sentence**:

"Participants should not have been born before July 1, X-19, where X is the year of the Olympiad."

Proposal 2: Addition to the IESO statutes

It was decided to add the following sentence to paragraph 12 of the statutes:

"Proposals for changes in the statutes have to be submitted four weeks before the first day of the IESO in written form (E-Mail) to the local organiser of the IESO, who in turn distributes them via E-Mail to past and present IESO participants and the IGEO country representatives, before the specified deadline".

2.1.4 News from the Commissions

The test commission elected a Gerard Bonheure to be the chair. The written test commission wants to recommend criteria for high quality items and also to publish examples. In addition, a discussion about the use of multiple choices questions versus single choice items has begun.

2.2 Preparations for the 8th IESO from 26 July – 5 August 2014 (Vermont, USA)

The Local Organizing Committee (LOC) has partnered with the University of Vermont and reserved 1000 beds. The focus of the 8th IESO will be on water science. 35 different IFTI projects are planned that are all data rich, and have relevance worldwide, and are water related. The dates will be between July 26 - tru Aug 5th.

During the 7th IESO in India ideas to attract further nations were discussed. The LOC of the 8th IESO consider having off-site elements in the Olympiad and trial this. Furthermore the idea of including the Geopark/Ecopark network in the preparation phase arose.

Concerning the quality of testing, the use of multiple task items that allow more than one correct answer was discussed. This has been tested during the 7th IESO for the practical test. The decision was left open for the 8th IESO LOC to decide. Furthermore Tom Taylor (LOC, 8th IESO) felt the need to develop Standards for ITFI, the Jury supported this. He plans to trial this.

2.3 Future IESO Events

- **9th IESO, 2015**, Russia. Contact: Evgeny Nesterov, nestem26@mail.ru
- **10th IESO, 2016**, Japan. Contact: Kenichiro Hisada, hisadak@geol.tsukuba.ac.jp
- **11th IESO, 2017**, one candidate expressed already interest.

3. International Syllabus on Earth Science Education

The development of an international syllabus has undergone the following phases:

- The collection of existing syllabuses from countries with active IGEO participants – 12 syllabuses eventually collected
- Analysis of the syllabuses to establish a common core
- Devising a draft syllabus, based on the common core
- Circulation of the draft syllabus to IGEO Council members for comment
- Receipt of comments on the draft

In this light of these developments, future activities planned are:

- Preparation of a final version of the syllabus
- Cross referencing of the final version with materials suitable for teaching the syllabus – these will be drawn from the bank of Earthlearningideas (www.earthlearningidea.com), a resource developed in association with IGEO and IUGS-COGE¹.

¹ The Earthlearningidea website resource currently (mid-October, 2013) contains 168 activities, with a new activity being added every two weeks; it has been accessed in 184 countries and is being translated into nine languages besides English, there have been more than 1 million pdf downloads of the activities, recently averaging 30,000 per month.

- Publication of the results in appropriate publications, including the *Episodes* magazine of IUGS.
- A session presented at the International Geoscience Education Conference, GeoSciEd VII in memory of David Thompson, to discuss and disseminate the international syllabus, whilst focussing on teaching approaches and activities appropriate for teaching the syllabus.

4. Public relation activities and communication strategies within the IGEO/IESO membership

IGEO members and the public are informed through the IGEO website (<http://www.geosci-ed.org/>) as well as through annually changing websites from the local organizers of the most current IESO. In addition the following activities are in progress:

4.1 General IESO Website

An IESO Website with general information on IESO is now available under: <http://www.ieso-info.org/>. From there the websites of each individual IESO edition is available as well as details of the Syllabus, the Statutes, Commissions and Commission members. We plan to add examples of task types and suggestions for teaching materials and strategies that will be valuable in developing best practice in geoscience teaching worldwide.

4.2 Facebook-Trial

Over the past three years a Facebook trial has been conducted (<http://www.facebook.com/pages/International-Geoscience-Education-organisation/126146467450938>). Now 276 people are in contact with us via Facebook, which are 83 more than last year. People from countries not yet represented on the IGEO Council also 'like' the site. More people are reached through the Facebook pages developed for the annual IESO events. 407 people visited the Facebook site of IESO 2014 (<https://www.facebook.com/IESO2013>) and 'liked' it. 192 people did the same for IESO 2012 (<https://www.facebook.com/IESO2012>).

4.3 Internal Communication Platform-Trial

The Test Commission of IESO desires to work efficiently between the IESO meetings using the internet. The platform choice for the period between the 6th and the 7th IESO proved difficult to use. Thus for next year another provider was chosen and will be trialled.

5. Resourcing Future Generations

The senior officers of IGEO are informed about the IUGS initiative "Resourcing Future Generations" and are discussing it. This matter will be taken up during the 7th GeoSciEd, India and possibilities to contribute reviewed.

12th October 2013, Dr. Sylke Hlawatsch (IGEO Chair 2010-2014), Germany
E-Mail: kontakt@sylke-hlawatsch.de