

# STATUTES OF THE INTERNAL EARTH SCIENCE OLYMPIAD

(Version 3, Published: January 20, 2015)

## ***Preamble:***

*The IESO statutes were revised based on resolutions passed by the International Jury which met in Santander, Spain on Sept. 25 and 27, 2014. This version (Version-3) was published on January 20, 2015 and it supersedes all previously dated or published versions.*

## **1. Introduction**

The International Earth Science Olympiad (IESO) is an annual earth science competition for secondary school students. The IESO has been founded as one of the major activities of the International Geoscience Education Organization (IGEO), and countries worldwide with a strong emphasis on earth science in their national curricula have supported the competition. Students who are winners of the respective national competitions are invited to participate in the IESO, and all interested countries are encouraged to contribute to the IESO.

## **2. Aims of the IESO**

The IESO is intended to:

- raise student interest in and public awareness of earth science,
- enhance earth science learning of school students,
- improve the teaching of earth science in schools,
- promote international cooperation in exchanging ideas and materials about earth science and earth science education, and
- encourage friendly relationships among young learners from different countries, and promote talented and gifted students in earth science.

## **3. Organization**

The IESO is organized by an authorized institution(s) of one of the participating countries with cooperation of the IESO Coordinating Committee and the Examination Board. The competition is held every year in the territory of the organizing country. The official language of the IESO is English.

## **4. Obligations of the Organizer**

The organizer of the IESO is obliged to invite all countries that wish to take part in the competition. The organizer must provide all participating countries with an itinerary of the IESO and supply a report of the competition held. The organizer may invite outstanding scientists and educators as observers and/or speakers by offering transportation and accident insurance for the invited person(s).

The organizer of the IESO agrees that there shall be no discrimination against countries and delegations on the basis of political orientation, diplomatic relationship, race, colour, gender, handicap, religious affiliation, or any other factors which are not pertinent to participation in the competition.

## **5. Delegations**

Each participating country sends its own delegation. Each national delegation has a maximum of four participants and two mentors. In addition, a participating country may bring guest students and observers. *Participants should not have been born before July 1, X-19, where X is the year of the Olympiad.* The participants must not be university/college students. They can only be students of secondary/high school. If they have already graduated before the competition, the organizer must be informed about the date of their graduation. A student who has already participated in an IESO and who wants to participate in a subsequent IESO may do so only as a guest student and not as a member of a national team. This means that the student will not be eligible for any medals at the second or subsequent IESO.

The mentors should preferably be specialists in Earth science education or Earth scientists with some school teaching background. They should be able to discuss the questions/ tasks and how they can be improvised. They must know the official language of the IESO and thus be able to translate the question papers and related materials from English to the participants' native language. In addition, they should discuss the status of earth science education in their countries, what actions have been taken to promote earth science education, what could be achieved and what obstacles were faced.

## **6. Preparation of Items for IESO and Items of Co-operation**

The organizer of the IESO is responsible for organizing all the logistics of IESO. The place and preliminary dates for the event should be presented by the organizer at least a year before the competition. The total duration of the IESO can range from one to two weeks. The event shall adopt the Earth System Science approach to impress upon the young minds that the Earth is but one large system. The event will consist of two parts: written (theory) and practical examinations. The written examination includes problems which are developed to measure the participants' robust knowledge and understanding in earth system science. The practical examination consists of tasks which are designed to assess participants' abilities to carry out scientific investigations in earth system science inquiries. The written examination is presented in a set of earth science problems which should be solved by participants within a period no longer than six hours. The

practical examination includes experimental and/or field task(s) which should be completed by participants during a suitable period.

The Scientific Committee of the host country and Mentors and Observers of different countries may send their questions and ideas to the Co-ordinator of the Examination Board. The Examination Board, while finalising the question papers, will ensure that the questions will be of good quality, of secondary/high school level, will test not the memory but the thinking ability and analytical skills of students, will conform to the Earth System Science approach, will correspond to the official IESO syllabus and will ensure a fair balance between written (theory) and practical tests. The Examination Board will also provide solutions and evaluation guidelines. Participants are given the theoretical problems and experimental or field tasks in a written format and supplied with materials needed to solve the problems and conduct the experiments. The participants are allowed to bring writing and drawing instruments and non-programmable calculators for the examinations.

International Team Field Investigation (ITFI) and Earth System Project (ESP) are two activities aimed at promoting international co-operation and forging bridges of friendship among young, talented students across the world. Annexures 1 and 2 provide more details of ITFI and ESP. The assignments for ITFI and ESP would also be designed under the supervision of the Examination Board, which has to ensure the quality of the assignments.

## **7. The International Jury**

The International Jury for the competition consists of a chairperson and members. The chairperson of the International Jury is appointed by the organizer of the IESO. The members of the International Jury are the two mentors in the delegations from each participating country. Resolutions of the International Jury are passed on the basis of majority votes in the presence of at least 75% of the members. Each participating country is entitled to one vote. The chairperson has the casting vote in case of a tie.

The International Jury has the following responsibilities:

- 1) To ensure that the competition is conducted in accordance with the regulations,
- 2) To monitor the examination process. The International Jury has the right to make decisions on excluding participants from the examination in case they do not comply with the regulations, including cheating,
- 3) To supervise the procedure of marking the participants' answers and ensure that all participants are judged by the same evaluation criteria,

- 4) To approve the final results of the evaluation, confirm the rankings, and decide on prizes for the participants. The chairperson and members of the International Jury must keep the results and decisions concerning the evaluation and prizes confidential until an official announcement is made, and
- 5) To moderate any difference in final scores among International Juries (recommended).

## **8. Evaluation and Prizes**

The participants' answers to the written and practical examinations are evaluated and marked by the International Jury. The rankings of the participants are based on the total scores of the written and practical examinations. The official results of the evaluation and the number of medals to be awarded are decided finally by the International Jury. The number of gold medals is approximately 10% of the number of participants, 20% for silver medals, and 30% for bronze medals. An honourable mention may be made of a competitor(s) who does not win a medal but gains high marks for theoretical problems or one practical task. All medals and honourable mentions are awarded on an individual and/or team basis, not on the basis of national results. Each competitor receives a certificate in recognition of his/ her participation in the IESO.

Assignments for ITFI and ESP would also be evaluated by the International Jury. Members of the award-winning team/s in both ITFI and ESP would be given individual certificates. More details are given in Annexures 1 and 2.

## **9. Financing**

Each country participating in the IESO must pay for its participation. The quantum of the registration fee is determined by the organizer of the IESO and requested in an official letter to be sent to the participating countries. The registration fee can be reduced for developing countries if the budget permits. The fee should be paid prior to or at the beginning of the IESO. Each participating country must pay the travel expenses (to and from) of its delegation to the place in the country where the IESO is held. All other expenses directly related to the IESO, including the cost of accommodation, meals, and local transportation for all delegations from countries, are covered by the organizer of the IESO. The organiser of IESO shall waive the registration fee of the Chair and Members of the Examination Board.

## **10. Bodies of the IESO**

The Examination Board is charged with the responsibility of receiving ideas and questions from the local Scientific Committee, and Mentors and Observers of different countries for the IESO

examinations and finalising the question papers, besides providing the solutions and marking procedures as mentioned in paragraph 6 above. Besides, it also has to approve the ITFI and ESP assignments. The Advisory Board of the IESO advises the Coordinating Committee in maintaining high standards of the IESO. The Advisory Board is chaired by the chairperson of IGEO. The Advisory Board consists of International Council members of IGEO and representatives of related international organizations who are assigned by the chairperson as members of the Advisory Board. For the beginning period of the IESO, IESO Committee may function as the Advisory Board.

The Coordinating Committee attends to the long-term work involved in organizing the IESO. The members of the Coordinating Committee are the chairperson of IGEO and representatives of the countries which have hosted the IESO during the past two years and the countries which will host the IESO in the next two years. For the beginning period of the IESO, every participating country may have one member on the Coordinating Committee.

The Coordinating Committee elects its own chairperson and completes its work in collaboration with the chairperson and the organizer of the IESO in accordance with the aims and regulations of the IESO. The Coordinating Committee may establish several commissions, such as Public Relations, Fund Raising, Syllabus Development, and Operative Matters, to manage urgent problems or tasks of the Olympiad. A commission is composed of several members. At least one of them should be a member of the Coordinating Committee, and others are collaborators invited by the Coordinating Committee.

The International Jury is an ad hoc body formed for each competition. The International Jury consists of the chairperson and up to two representatives each from all national delegations. It is chaired by a distinguished specialist in earth science and/or earth science education who is appointed by the organizing country of the IESO.

## **11. Statutes**

All countries participating in the IESO, their delegations, and the bodies of the IESO are obliged to observe the IESO statutes. Proposals for changes in the statutes have to be submitted four weeks before the first day of the IESO in written form by email to the local organiser of the IESO, who in turn would distribute them via email to past and present IESO participants and the IESO country representatives, before the specified deadline. Changes in the statutes can only be made by the International Jury when more than two thirds of votes with regard to the total number of the members are in favour of the suggested changes. Any matter not included in the statutes is decided upon in the meeting of the International Jury.

## ANNEXURE - 1

### INTERNATIONAL TEAM FIELD INVESTIGATION (ITFI)

The International Earth Science Olympiad is not just about competition among students. One of the principal objectives of IESO is to promote international co-operation and forge bridges of friendship among young, talented students across the world. To achieve this objective, IESO has as its integral part the International Team Field Investigation (ITFI) and Earth System Project (ESP). These activities are unique to IESO and set the latter apart from all other international science olympiads. The spirit behind the activities is not competition but co-operation, and coming together and working together of students from different nationalities, diverse cultures and varied backgrounds. This is singularly important today, and much more so in future, because major strides in scientific research are no longer possible by the efforts of individual scientists but of groups of scientists from different disciplines, institutions and nations.

Each group will be assigned a site to investigate. Students carry out investigations, learn through observations, collect data and take pictures in the field, search the Internet for relevant information, analyse all the data critically and answer the questions posed for each site. Further, they will prepare a report and make a PowerPoint presentation before all the students, mentors and observers. Thus, the audience will get to share the excitement about all the ITFI projects. A jury will evaluate the teams and decide on the recipients of GOLD/ SILVER/ BRONZE ITFI Teams. The rubric (evaluation scheme) for ITFI is given below:

#### Rubric for Evaluation of ITFI Project Presentation

##### *Content*

Components	Complete			Partial				Very limited		
<b>The depth of the project:</b>	10	9	8	7	6	5	4	3	2	1
	Was knowledge and information content beyond that provided by the field guide?									
<b>Use of geological principles</b>	10	9	8	7	6	5	4	3	2	1
<b>Complete connection of the earth systems</b>	10	9	8	7	6	5	4	3	2	1
<b>Originality and creativity</b>						5	4	3	2	1
	Presenting original ideas and perspectives which were not presented by the field leader.									

### *Structure of the Presentation*

Tasks	Complete				Partial				Very limited											
Clarity of subject and purpose	10	9	8	7	6	5	4	3	2	1										
A clear connection among presentations' parts (Flow of the presentation).	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

### *The use of Tools*

Tasks	Complete				Partial				Very limited		
Concretization level of the subjects	10	9	8	7	6	5	4	3	2	1	
Minimal text and clear fonts	10	9	8	7	6	5	4	3	2	1	
Was the presentation dynamic to serve the content?	10	9	8	7	6	5	4	3	2	1	
Contextual use of scientific terms	10	9	8	7	6	5	4	3	2	1	
Aesthetics	10	9	8	7	6	5	4	3	2	1	

### *Oral Presentation*

Tasks	Complete				Partial				Very limited		
Synchronization between oral and PPT presentations	10	9	8	7	6	5	4	3	2	1	
Fluency	10	9	8	7	6	5	4	3	2	1	
Time management	10	9	8	7	6	5	4	3	2	1	

*International Co-operation (To be evaluated on site by a Volunteer in cognito)*

Criteria (co-operation and involvement)	Complete			Partial				Very limited		
	10	9	8	7	6	5	4	3	2	1
How many team members were actually involved in the investigation?										
Quality of discussion amongst members										
Were they open to learning from one another?										
Did members respect others and give them an opportunity to contribute and speak up?										

**ANNEXURE – 2**

**EARTH SYSTEM PROJECT (ESP)**

One of the main challenges of the IESO is to showcase the current state of 21<sup>st</sup> century science in general and earth science in particular. To address this challenge, the 7th IESO in India introduced a new activity called the “Earth System Project”. This lays emphasis on the evaluation and development of the following scientific skills: data collection, data analysis, reasoning, system thinking, communication and collaboration and oral and written presentation.

Multinational groups of students research the topic using and analysing the data they collect from the internet. They would present their results and findings in the form of posters that will be viewed by all the IESO participants. A jury will evaluate and decide on the Gold / Silver / Bronze Research Project Teams. The rubric (evaluation scheme) for ESP follows:



## Rubric for Evaluation of the Poster in the Earth System Project

### *Content*

Categories	Complete					Partial					Very limited														
Depth of understanding of the Earth System phenomenon	10	9	8	7	6	5	4	3	2	1															
Complete connection of the earth systems	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
Use of geological principles	10	9	8	7	6	5	4	3	2	1															
Contextual use of scientific terms	10	9	8	7	6	5	4	3	2	1															
Originality and creativity	10	9	8	7	6	5	4	3	2	1															
	Did the poster included aspects which were not appeared commonly in the other posters?																								

### *Structure of the Purpose*

Categories	Complete					Partial					Very limited														
Clarity of subject and purpose	10	9	8	7	6	5	4	3	2	1															
A clear connection among the poster's parts	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1					
	The ability to understand the monsoon phenomenon and the inter-relationships among the earth systems that are related to this phenomenon just from reading the poster																								

### *The Quality of the Posters*

Categories	Complete					Partial					Very limited									
Visual display of the data	10	9	8	7	6	5	4	3	2	1										
	They used effective display of pictures, graphs, tables.																			
Minimal text and clear fonts	10	9	8	7	6	5	4	3	2	1										
Balance between graphics and text (One serving the other)	10	9	8	7	6	5	4	3	2	1										

The flow of the poster	10	9	8	7	6	5	4	3	2	1
	Readers can follow the logic of the poster									
Aesthetics	10	9	8	7	6	5	4	3	2	1

*Oral Explanation*

Category	Complete					Partial					Very limited									
Each of the team members can explain any part of the poster	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

*International Co-operation*

Criteria (co-operation and involvement)	Complete					Partial					Very limited				
How many team members were actually involved in the project?	10	9	8	7	6	5	4	3	2	1					
Quality of discussion amongst members	10	9	8	7	6	5	4	3	2	1					
Were they open to learning from one other?	10	9	8	7	6	5	4	3	2	1					
Did members respect others and give them an opportunity to contribute and speak up?	10	9	8	7	6	5	4	3	2	1					