

50th Annual Convention of Indian Geophysical Union (IGU)

The 50th annual convention of IGU on “Sustainability of Earth System – The Future Challenges” was organized jointly by IGU and CSIR-NGRI during 08-12 January 2014 at CSIR-NGRI, Hyderabad. This was preceded by 5 workshops at NIO, Goa; NESAC, Umiam, Meghalaya; WIHG, Dehradun; SRTM University, Nanded and Jadavpur University, Kolkata, as part of Golden Jubilee celebrations of IGU (1963-2013). Workshop details have been included in the last four issues of IGU journal.

The enhanced magnitude and frequency of Natural Hazards (in the recent past), has necessitated a more focused scientific endeavours by linking together salient signatures present at local, regional and global levels to bridge the gaps in our understanding of the genesis and propagation of these hazards. Realising the sustainability of the Earth System needs scientific, technical and executive initiatives, it is felt essential to have a judicious planning in implementing various scientific decisions. As IGU is wedded to overall well-being of life on earth and environment, it has taken the needed initiative to invite experts to deliver key note papers, during the 5 day convention, to chart out a road map through a holistic scientific endeavor. As the International Council for Science (ICSU) is spearheading a global initiative to motivate all the stake holders to holistically address issues to enhance the quality of life in future under its theme—Future Earth, IGU invited Noble Laureate Prof. Y.T. Lee, President of ICSU, to inaugurate the 5 day convention.

The inaugural function was held in the afternoon of 08th Jan 2014. The convention inaugurated by Prof. Y.T. Lee was attended by many dignitaries, including Guests of Honor Dr. Carol Finn, President-AGU & Dr. Alik Ismail – Zadeh, Secretary General-IUGG, Prof. Harsh Gupta, President-IUGG, Dr. Shailesh Nayak, Secretary-Ministry of Earth Sciences (MoES) and Prof. Mrinal K Sen, Director CSIR-NGRI and Chairman LOC. More than 300 delegates including 80 research scholars and students registered for the convention. After remarks by dignitaries, secretary's report and Presidential address, Prof. Lee, while congratulating IGU for its service to the society in the last 50 years, stressed the importance of scientific societies in ensuring better living conditions in future. In his inaugural address Prof. Lee stressed on timely scientific and technological interventions to build the future earth that would ensure better and sustainable environment for man, flora and fauna to co-habitat the mother earth. Guests of Honor Dr. Carol

Finn and Dr. Alik Ismail-Zadeh gave a brief account of the importance of Earth Sciences in enhancing a country's progress in the economic, social, educational and health sectors. Dr. Shailesh Nayak, Secretary-MoES, while extending his warm greetings to all those associated with IGU and the delegates pointed out that the scientists should address the problems associated with higher frequency of extreme events in the recent past. Prof. Harsh Gupta appreciated the efforts made by the IGU in propagating the importance of scientific research in earth system sciences by selecting the topic "Sustainability of Earth System Sciences – The Future Challenges". He also pointed out that special session on Future Earth has been included, as global collaboration and involvement of various stake holders is essential for ensuring better future.

President of IGU honoured meritorious senior and young scientists with IGU national awards for the year 2013.

- 1 Krishnan Medal – Saumen Maiti, P. Senthil Kumar
2. IGU-Hari Narain Lifetime Achievement Award in Geosciences – Dr. Shailesh Nayak
3. Prof. K.R. Ramanathan Memorial Lecture – Surjalal Sharma
4. Dr. H.N. Siddiquie Memorial Lecture – S.W.A. Naqvi
5. Sri L.N. Kailasam Memorial Lecture – B.B. Bhattacharya
6. Electrotek – Geometrics Endowment Lecture – Mihir Deb
7. Anni Talwani Memorial Award - Dr. K.S. Krishna
8. Prof. D. Lal Best paper award - Dr. Onkari Prasad , Dr. O.P. Singh
9. Golden Jubilee Award – Dr. P. R. Reddy and Late Mr. N. Venkateswarlu

He also felicitated past Presidents (Drs. M. Krishnamurthi, Prof. Harsh Gupta and Dr. D.P. Rao) and Foundation Fellow (Prof. V.V.J. Sarma) and past Hon. Secretaries (Drs. D. Atchuta Rao, P.R. Reddy and B.R. Prasad).

Prof. Lee presented certificates to student delegates.

During the inaugural function, Golden Jubilee Souvenir, 50th annual convention Abstract volume, IGU Directory and Technical Program were released by the dignitaries. Dr. Rajiv Nigam, joint secretary IGU proposed vote of thanks. After the inaugural function, an exhibition of industrial products, geophysical instruments and details of research organizations was inaugurated by Dr. Shailesh Nayak.

Technical Sessions:

The convention featured 78 oral presentations including key note addresses, award lectures, invited talks, lead talks, in addition to 67 poster presentations

Session I: Sustainability of the Earth System – The Future Challenges

The first scientific session, covering the main theme was held in the forenoon of 09th January. The session was chaired by Dr. P. R. Reddy . There were three key note presentations in this session. In the first presentation Dr. Walter D Mooney, senior seismologist, USGS gave a lucid presentation on ‘Mega Earthquakes and Mega Tsunamis: Future Prospects for Hazard Mitigation’. In the second talk Dr. B.M. Reddy, INSA-Hon. Scientist and Advisor of IGU gave a talk on ‘Global warming and Sustainability of our Earth – Atmosphere System’. In the last talk Prof. K.S. Valdiya, Distinguished scientist, JNCASR, Bengaluru presented details of ‘The Uttarakhand calamity: Lessons learnt on Sustainable Development Programme’.

This was followed by the second session.

Session II : Recent Advances in Geophysics

This session was split into sub-sessions IIa and IIb.

Session IIa:

The IIa session was chaired by Dr. Carol Finn. In this session five presentations were made, including one key note talk. In the first presentation Dr. Sukanta Roy provided a detailed information on ‘Scientific Drilling and Bore-hole investigation in Koyna region, Western India’. Prof. Ramesh P Singh gave a talk on - ‘Melting of Himalayan Glaciers: Impact of Dust or Black Carbon?’. This was followed by a talk - ‘Role of Multi-component (OBS) Data in Gas Hydrate Exploration’ by Dr N. Satyavani. In the fourth talk Dr. Gahalaut gave a lucid exposition of ‘Indian Plate Motion and Deformation’. Prof. Mrinal K Sen in his key note presentation brought into focus the limits of seismic resolution. This sub-session was followed by releasing of two books (authored by Prof. V.P. Dimri and Dr. I.Radhakrishna respectively) by Prof. Roddam Narasimha. After releasing the two books, Prof Narasimha, Distinguished Scientist–JNCASR delivered 2013-Prince Mukarram Jah Endowment Lecture - ‘Does Solar Activity Affect Indian Monsoon Rainfall?’

Session IIb: Recent Advances in Geophysics

This session was chaired by Prof. Manik Talwani, Emeritus Professor, Rice University, Texas, USA. In this session four presentations were made. Dr. V.M. Tiwari presented a talk on 'Satellite Based Estimates of Spatio-Temporal Variability of Water Storage over India and surrounding regions'. This was followed by a talk entitled 'Receiver Function Images of the Lithosphere-Asthenosphere Boundary beneath India' by Dr. Prakash Kumar. Dr. A.P. Dimri presented a model numerical simulation of a hailstorm event over Delhi. In the fourth talk Prof. B.K. Rastogi gave a lucid presentation on 'Seismic Hazard Assessment at different levels'.

After completion of session II b, the following award lectures were delivered:

Krishnan Medal Lecture, Prof. K.R. Ramanathan Memorial Lecture, Dr. H.N. Siddiquie Memorial Lecture, Sri L.N. Kailasam Memorial Lecture and Electrotek – Geometrics Endowment Lecture. Prof. B.B. Bhattacharya released a book authored by Dr. H.C. Tewari and B.R. Prasad.

Session III: Special Session on Future Earth

This special session was chaired by Prof. Nordin Hasan, Director, ICSU. In his introductory remarks, Prof. Hasan elucidated the role of ICSU in enhancing quality of scientific initiatives under 'Future Earth' project. Prof. Harsh Gupta in his welcome remarks explained in detail reasons for having this exclusive session. In his key note address Prof. Y.T. Lee stressed about the role of 'Future Earth' initiative in ensuring sustainability of Human Society. In his highly informative and lucid presentation, Prof. Lee stressed that it is extremely necessary to reduce population growth and look at ways of preventing destruction of the planet..

In this session there were four lead talks and eight invited talks. In the first lead talk, Prof. Harsh Gupta gave a comprehensive presentation on 'Earthquakes : How to cope with them?'. This was followed by an excellent presentation on 'Where, when and why earthquake hazard turns to become a disaster?' by Dr. Ali K. Ismail-Zadeh. In the third lead talk Dr. L.S. Rathore explained in detail the developments in early warning system for monsoon and cyclones. This was followed by an important presentation by Dr. Anil Kakodkar. He stressed the need to have alternative energy (especially nuclear in addition to solar and wind) production and usage to overcome non-renewable natural resource based energy generated problems. Dr. S.N. Rai in his lead talk detailed about sustainability of ground water resources. As a part of invited talks, Prof.

J.R. Kayal detailed about 'State of Tectonic stress in Andaman-Sumatra subduction zone: Before and After the 2004 Mega Earthquake MW 9.3'. This was followed by a presentation on 'Seismic Risk on Built Environment in India' by Dr. C.V.R Murty. In the third presentation Dr. Ravi Prakash Srivastava detailed about role of Earth System Science in understanding of Bio-Sphere dynamics. This was followed by a presentation on "Gas Hydrates and Shale Gas- Potential Unconventional Energy Resources of India' by Dr. K. Sain. Prof. U.C. Mohanty gave a presentation on 'Simulation of Heavy Rainfall Associated with Monsoon and Tropical Cyclones over Indian region using High Resolution Meso-Scale Models'. This was followed by a presentation on 'Monsoons and Cyclones' by Prof. Ajit Tyagi. Dr. Shakeel Ahmed gave a talk on 'Water, a Renewable Treasure of the Future Earth: Reducing Uncertainties in its rational management through Scientific Approach'. This was followed by a presentation on "the efforts to enhance understanding of the nature" by Prof. Archana Bhattacharya..

This was followed by IGU Annual General Body Meeting, and a Cultural Programme. Two dinner talks were given by Prof. Manik Talwani and Prof. Shamita Das.

Session-IV: AGU-IGU Collaboration

This special session held in the forenoon of 11th January was chaired by Dr. Walter D Mooney. After his introductory remarks, Prof. Surjalal Sharma of University of Maryland, USA gave a brief account of strides made by AGU and usefulness of collaboration between IGU and AGU. Dr. Carol Finn in her key note talk presented details on the important initiatives taken by AGU in strengthening co-operation between scientists from different parts of the world and usefulness of co-operation between AGU and IGU. This was followed by a welcome response by Dr. V.P. Dimri and signing of Memorandum of Understanding (MoU) between AGU and IGU. A panel discussion was held under the chairmanship of Prof. Harsh Gupta.

Prof. Harsh Gupta welcomed the panel for discussion on AGU-IGU – Way forward. Prof. V.P. Dimri informed that as most of the activities of both the organisations are similar and as AGU has agreed to the collaboration in principle, this interactive session has been organised and the Memorandum of Understanding (MoU) signed.

Dr. Carol Finn informed that some of the points raised in the session will be placed before the Board of Directors of AGU for their approval. Once some of the recommendations are agreed by the Board of Directors, such as joint membership, organising joint meeting in India, involvement of SAARC countries, joint organisation of seminars etc, she would get back to IGU for further

necessary action. The session was concluded with over all appreciation of the delegates for the MoU between AGU and IGU.

Session V: Panel discussion on ‘Higher Education in Earth Sciences’

The discussion moderated by Prof. P. Rajendra Prasad of Andhra University had Dr. Carol Finn, Prof. V.P. Dimri, Prof. Surjalal Sharma, Prof. V. Krishnamurty and Prof. S.S. Teotia as panellists. Though in recent times sufficiently large funding avenues have been in place, Capacity building encompassing state of the art experimental and analytical facilities, field equipment, competent teachers and students with commitment to pursue earth science as career have not been sufficiently witnessed for multiple reasons. It was decided by the Panel that the focus should be:

Attract good students, competent and committed teachers; augment basic infrastructural facilities that can comply with the minimum research and teaching needs; and enhance student employability to ensure sustainable development of ‘Higher Education in Earth Sciences’.

Session VI: Ph. D. Student’s presentations

This session was chaired by Prof. Mrinal K Sen. Senior Ph.D. students and those who submitted their theses in the recent past presented in detail the research studies carried out by them. In total 15 students from various universities/research institutes (Kurukshetra Univ, IIT-Kharagpur; ISM-Dhanbad; ISR-Gandhinagar; IMD-New Delhi; GSPCL-Gandhinagar; Goa Univ-Goa and CSIR-NGRI, Hyderabad) participated in the session. The Chairman selected two for outstanding presentation and IGU gave cash prizes. The two recipients are : 1. Ms. B. Remya, IIGM, Navi Mumbai and Mr. Saurabh Dutta Gupta, GERMI, Gandhinagar .

Session VII: Solid Earth Geosciences: Natural Hazards

This session was jointly chaired by Prof Shamita Das of Oxford Univ., U.K and Prof. J.R. Kayal, Kolkata. Fourteen oral presentations were made during this session.

Session VIII: Marine Geosciences; Atmosphere-Space & Planetary Sciences and Environmental Geosciences

This session was chaired by Dr. B.M. Reddy. In total 14 presentations were made.

Session IX: Theoretical, Experimental and Exploration Geophysics

This session was chaired by Prof. BVS Murthy, Retd. Prof, O.U. In total, 11 presentations were made.

Session X: Poster Presentations of all sessions

This session was monitored by Dr. O.P. Pandey and Prof. S.S. Teotia. In total 67 poster presentations were made, India.

Concluding Session:

This session was compered by Dr. Ajay Mangalik. He gave a detailed account of the proceedings during the inaugural function. This was followed by a brief presentation by all the Chairmen of different technical sessions. On completion of these presentations, ONGC-IGU cash awards were given to 'Best poster presentations' (three research scholars and three students). The session was concluded with remarks by Dr. V.P. Dimri, President-IGU.He thanked all the delegates, Chairman and members of LOC, EC of IGU for their excellent support and help in organising the five day 50th annual convention of IGU.



Delegates participated during 50th annual Convention of IGU, held at CSIR-NGRI, Hyderabad