

## **Plenary of the Group of Earth Observation (GEO)** **St. Petersburg, Russia, 8-11 November 2016**

Established in 2005, GEO is a voluntary partnership of governments and organizations that envisions “a future wherein decisions and actions for the benefit of humankind are informed by coordinated, comprehensive and sustained Earth observations and information.” GEO Member governments include 102 nations and the European Commission, and 106 Participating Organizations comprised of international bodies with a mandate in Earth observations (including IUGG, and four Union’s grouping). Together, the GEO community is creating a Global Earth Observation System of Systems (GEOSS) that will link Earth observation resources world-wide across multiple Societal Benefit Areas - Biodiversity and Ecosystem Sustainability, Disaster Resilience, Energy and Mineral Resources Management, Food Security and Sustainable Agriculture, Infrastructure & Transportation Management, Public Health Surveillance, Sustainable Urban Development, Water Resources Management - and make those resources available for better informed decision-making.

*As the Principal IUGG Delegate to the Plenary of the Group of Earth Observation (GEO), Alik Ismail-Zadeh participated in the GEO Plenary XIII.*

### ***Panel on Earth & Space Observations for Disaster Risk Assessment***

*Secretary General of IUGG Alik Ismail-Zadeh co-organized a GEO Side Event on Earth and Space Observation for Disaster Risk Assessment on 8 November to attract the attention of GEO Member States representatives to the topic of Earth and space observations for disaster risk reduction. The motivation of the panel was the fact that despite major advancements in knowledge on disaster risks and on disasters caused by natural hazards, the number and severity of disasters is increasing. Global Earth and space observations can significantly assist in reducing disasters by monitoring the Earth’s surface and its space environment. Early warning system augmented by the real-time monitoring and observation of hurricanes, severe storms, tornados, flooding, landslides, volcanoes, earthquakes, and tsunamis as well as monitoring the mobility of people and development of infrastructure would help in scientific analysis and assessment of disaster risks. Finally, it would save lives and properties and hence contribute to mitigation of*

disasters. This side event will highlight the importance Earth observations and risk assessments in disaster risk reduction.

Together with Vladimir Kattsov (RosHydroMet), Vice-Chair of Joint Scientific Committee of the World Climate Research Programme (WCRP), Alik Ismail-Zadeh moderated the Panel. The following five panelists have been invited and gave a short talk:

1. Michael Sideris (Canada), IUGG and GEO Programme Board
2. Günter Stangl (Austria), Global Geodetic Observing System (GGOS)
3. Shirish Ravan (India), United Nations Office for Outer Space Affairs (UN-SPIDER)
4. Lars-Peter Riishojgaard (USA), World Meteorological Organization (WMO)
5. Christos Zerefos (Greece), Academy of Athens

Major questions, which the panelists addressed in their talks were:

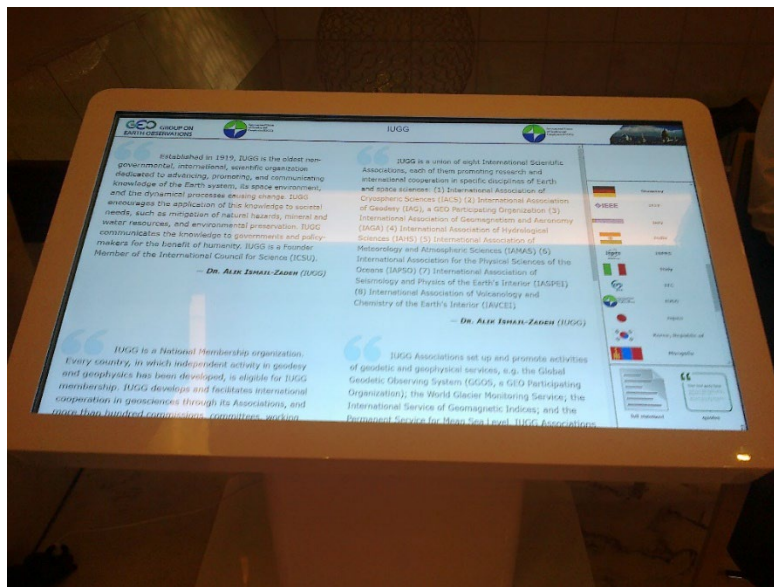
- How observations from space and ground can assist in disaster risk assessment?
- How cooperation between countries and international/intergovernmental organizations should be strengthened to assist in disaster risk assessment and reduction?

After the talks panelist answered questions and comments of the participants. About 50 experts from different expertise and different countries attended the Panel, among them Prof. David Grimes, President of the World Meteorological Organization (WMO), Dr. Vladimir Frolov, President of RosHydroMet, and Dr. Olga Gershenzon, President of the RBS Signal Company (dealing with disaster early warning).

## **GEO Plenary**

The GEO Plenary was held on 9 and 10 November and was one of most attended Plenaries held so far. After the Opening ceremony and welcome addresses from the Russian organizers and GEO officers, two panel sessions were held, both dedicated to advancing the GEO vision. These panels focused on progress towards GEO Strategic objectives and Ministerial commitments. They concerned the challenges and opportunities in ongoing and emerging GEO efforts in support of the GEO objectives and commitments – from user- and policy-driven initiatives to foundational efforts to build GEOSS. Delegations were invited to participate with questions and comments on the basis of the information about these initiatives and efforts available in the listed supporting documents. *Alik Ismail-zadeh made a statement on behalf of IUGG* (see below).

The first panel included representatives from GEO Initiatives and Flagships covering the full spectrum of actors from policy and decision makers to those involved in advisory and implementation roles. The second panel included representatives of the Teams currently involved in the foundational components of GEOSS, including coordination of Earth observations; data sharing; and development of tools to improve delivery and use of Earth observation data and information. Each panelist addressed challenges and opportunities in the development and implementation of the activities. The final session of the day was dedicated to relationship with industry. This session included representatives from the commercial sector: data providers, providers of value-added services and downstream-user sectors. The Panel discussed challenges and opportunities related to the commercial sector engagement in GEO, from contributing or benefiting from existing GEO efforts to exploring opportunities for new collaborations. On 10 November, the Plenary discussed the ways of strengthening stakeholder engagement. *Alik Ismail-Zadeh intervened into the discussion proposing that the ways should not only be limited to multidisciplinary cooperation, but also involve inter- and transdisciplinary co-produced approaches.* The Chair of the Programme Board presented a report and discussed how UN Sustainable Development Goals have been analyzed with respect to the activities of GEO and GEOSS.



*IUGG presentation at the GEO Plenary XIII (photo: A. Ismail-Zadeh)*

## **Statement of GEO Principal Dr. A. Ismail-Zadeh**

Excellences, Chairperson, Executive Director, distinguished Delegates!

It is a great pleasure to address the GEO-XIII Plenary on behalf of the IUGG. For almost 100 years IUGG has been developing an international cooperation in Earth and space sciences and working together with many international and intergovernmental institutions, including two major UN agencies such as the United Nations Educational, Scientific and Cultural Organization (UNESCO) and the World Meteorological Organization (WMO), on the challenges of improving our understanding of Earth and space processes and dynamics in support of socio-economic development and protection of the environment. Over the last decade, IAG has been cooperating with GEO and contributing to GEOSS via its program GGOS. Another two Participating Organizations of the IUGG family are the Federation of Digital Broad-Band Seismograph Networks (FDSN), an IASPEI commission, and the International Ozone Commission, an IAMAS commission. In 2014 IUGG as a union of eight international geoscience associations became a GEO Participating Organization.

IUGG provides the opportunity for Earth and space scientists of the world to plan collaborative research programs/projects and to work together in monitoring geophysical phenomena, gathering observation, and discussing their respective methodologies, results and hypotheses. Being a INGO the union is funded largely from its own activities with a support from national academies of sciences and other national research agencies adhering the union. IUGG's greatest resources, without which it would achieve nothing, are the thousands of scientists from all over the world who draw on their enthusiasm for Earth and space science to devote a major part of their professional lives to producing scientific products, coordinating geodetic and geophysical services, projects and programs, organizing meetings, and building capacity in developing world. IUGG established a series of inter-association and union commissions, including those related to climatic and environmental change (CCEC), geophysical risk and sustainability (GRC), planetary sciences (UCPS), and data and information (UCDI). I shall mention just a few of the most relevant activities of IUGG Associations and Union Commissions.

- At the sixth session of the U.N. Committee of Experts of Global Geospatial Information Management (UN-GGIM) in New York in August 2016, the UN-GGIM endorsed the Roadmap of the Global Geodetic Reference Frame (GGRF) and decided to establish a

permanent Sub-Committee on Geodesy. The IAG of IUGG significantly contributed to this event. IAG and its GGOS will support the new Sub-Committee whenever necessary and wherever possible.

- IAHS, which has close and long-standing links with the WMO's Hydrology and Water Resources Programme and the UNESCO International Hydrological Programme, develops a program "Panta Rhei – Everything Flows", a decade of co-operative research on change in hydrology and society that runs until 2022.
- IAMAS supports research activities related to atmospheric and coupled oceanic-atmospheric processes, weather, climate and its variability and cooperates with WMO and the Global Oceanic Observing System (GOOS) of the Intergovernmental Oceanographic Commission (IOC) of UNESCO on the relevant topics.
- IAPSO cooperates with IOC-UNESCO on tsunami research, and convenes together with the World Climate Research Programme (WCRP) and Scientific Committee on Oceanic Research (SCOR) Working Group on Climatic Importance of the Greater Agulhas System.
- CCEC, GRC and UCDI cooperate with CODATA, the Integrated Research on Disaster Risk, WCRP, and World Data System of ICSU to promote research on climate variability, natural hazards, disaster risks, big data and information.

Considering the variety of existing structures within GEO, IUGG tries to develop a cooperation with GEO in the areas of disasters, climate, water, and weather. IUGG can provide essential assistance to several communities of practice: atmospheric chemistry, cryosphere, coastal zones, water cycle, and geohazards. Therefore, IUGG's contributions to GEO could be viewed in terms of scientific expertise in Earth and space observation, data acquisition, mining and analysis. IUGG can contribute to GEOSS by overseeing several geophysical and geodetic services, such as the IAG's GGOS, IASPEI's seismological networks, the IACS's glacier monitoring service, the IAGA's service of geomagnetic indices, and the IAPSO's mean sea level and seawater services.

IUGG envisages the possibility of directing some on-going IUGG activities more specifically to GEO aims and linking them with on-going GEO projects. There are opportunities for IUGG Associations and Commissions and the expertise of their scientists to assist with on-going GEO projects, if so requested. Both of these options will require negotiations between IUGG and those leading the GEO projects concerned. In addition, entirely new joint GEO-IUGG activities could

be initiated where the need is identified. Last, but not least, IUGG is in a position to support new initiatives, and to some extent fund joint seminars, summer schools and workshops on relevant topics.

IUGG is very pleased to participate in the GEO XIII Plenary in St. Petersburg, the city established by Peter the Great, who promoted the development of science and technology and the international research cooperation in Russia. IUGG feels very much “at home” in the GEO community of nations and like-minded organizations, sharing the goal of “integrating observations to sustain our planet”.