

## STATEMENT PRESENTED TO GEO XI PLENARY

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Excellences, Chairman, distinguished delegates: it is with great pleasure that I accept the invitation to address this important meeting on behalf of the International Union of Geodesy and Geophysics (IUGG). For some 95 years IUGG has grown and worked with many intergovernmental institutions including the World Meteorological Organization and UNESCO 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, the International Association of Geodesy, a constituent association of IUGG, has been cooperating with GEO and contributing to GEOSS. Following an invitation of the GEO Secretariat, in 2013 IUGG applied for the membership in GEO and became a Participating Organization early this year at the GEO X Plenary. However, this membership poses the question: in what manner should IUGG become involved in GEO activities? Before seeking for an answer, let me say a few words about the Union and the sort of activities it undertakes.

IUGG provides the opportunity for Earth and space scientists of the world to discuss their respective methodologies, results and hypotheses and to plan collaborative research programs and projects. The Union is a non-governmental organization in that it is funded largely from its own activities with some support from National Academies of Sciences and other national scientific bodies adhering to the Union. IUGG cannot therefore fund research and data acquisition projects itself, but has for nearly one hundred years organized conferences and symposia, published leading scientific journals and perhaps most importantly launched, endorsed or co-sponsored international scientific programs (such as the International Geophysical Year, International Heliophysical Year, Electronic Geophysical Year), all of which are either self-financing or have attracted external funding from donors. IUGG's greatest resources, however, without which it would achieve nothing, are the thousands of scientists from all countries of the world who draw on their enthusiasm for geoscience to devote a major part of their professional lives to organizing meetings, editing scientific papers and coordinating projects and programs.

The Union is composed of eight International Associations (IA) dealing with cryospheric sciences (IACS since 1894), geodesy (IAG since 1863), geomagnetism and aeronomy (IAGA since 1836), hydrological sciences (IAHS since 1922), meteorology and atmospheric sciences (IAMAS since 1872), oceanography (IAPSO since 1900), seismology (IASPEI since 1903), and volcanology (IAVCEI since 1922). IUGG has also established a series of inter-association commissions, including the Commission for Climatic and Environmental Change (CCEC), Commission on Geophysical Risk and Sustainability (GRC), and Commission on Data and Information (UCDI). I shall mention just a few of the most relevant of their activities.

- The Global Geodetic Observing System (GGOS) is the observing system of IAG. GGOS was established in 2003, and since 2004 GGOS represents IAG/IUGG in GEO, and GGOS is IAG's contribution to the GEOSS.
- IAHS which has close and long-standing links with WMO's Hydrology and Water Resources Programme and UNESCO International Hydrological Programme, has launched "Panta Rhei – Everything Flows", a decade of co-operative research on change in hydrology and society that runs from 2013 to 2022. These two decades have attracted the enthusiastic support of the younger generation of hydrologists, which bodes well for the future of the science.
- IAMAS, with its several International Commissions, has many decades of experience in this field through its support for research activity into atmospheric processes, weather, climate and its variability and supported the activities of WMO and the Global Oceanic Observing System (GOOS) of the Intergovernmental Oceanographic Commission of UNESCO.
- 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 has recently launched a new project “Weather, Climate and Food Security (WeatCliFS)” in cooperation with the International Union of Food Science and Technology and the International Union of Nutritional Sciences. The project has as its aim to improve our understanding of the linkages between weather, climate and food security, concentrating particularly on situations when the weather and climate can lead to disasters.

Considering the variety of existing structures within GEO, IUGG might contribute to several Societal Benefit Areas (SBA), which are the pillars of the societal visibility of GEO. For example, GRC to the area of Disasters, CCEC to Climate, IAHS to Water, and IAMAS to Weather. Also IUGG can provide essential assistance to several communities of practice: atmospheric chemistry (via IAMAS), cryosphere (via IACS), coastal zones (via IAPSO and IAMAS), water cycle (IAHS and IAG), and geohazards (GRC, IAG, IAGA, IASPEI, IAVCEI). Therefore, the IUGG’s contribution as an international scientific organization could be viewed along three lines: (i) to provide scientific expertise to GEO and its numerous groups; (ii) to represent the community of geoscientists as one user community of GEOSS; and (iii) to contribute to GEOSS by running several scientific services, such as IASPEI seismological networks, IACS glacier monitoring service, IAGA service of geomagnetic indices or IAPSO mean sea level and seawater services.

However, there are some uncertainties related to involvements of IUGG into GEO activities in future, which are based primarily on structural complexities of both organizations and potential scientific contributions of international unions, in general. To discuss these issues with the geophysical community, IUGG set up recently an ad-hoc group of experts to determine the Union policy related to cooperation with GEO-GEOSS for the next decade. We envisage the possibility of directing some on-going IUGG activities more specifically to GEO aims and linking them with on-going GEO projects. There are also 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, seminars, summer schools and workshops on relevant topics.

IUGG is very pleased to participate in the GEO XI Plenary. We feel very much “at home” in this community of like-minded organizations, sharing the goal of “*integrating observations to sustain our planet*”.