International Union of Geodesy and Geophysics

Resolutions

ADOPTED BY THE COUNCIL
AT THE XXVI GENERAL ASSEMBLY
PRAGUE, CZECH REPUBLIC
(22 JUNE – 2 JULY 2015)

Resolution 1:

Role of Ocean in Climate

*The **International Union of Geodesy and Geophysics***

Considering
The important role of the ocean in the whole Earth system, in particular its interactions with the atmosphere, at all time-scales,

Acknowledging
- That this fact must be properly translated into modeling, either for operational oceanography or for study of the Earth climatic system and that the use of these models for estimating relevant states (past, present or future) requires specific observations,
- Quantities related to physical oceanography are of fundamental importance for research related to biological or environmental aspects of the ocean (for instance ocean acidification and deoxygenation) or for societal impact (sea level),

Noting
The recommendations from recent international conferences,

Urges
- All countries to contribute through international cooperation and coordination to establish adequate and sustainable observing systems, ensuring high quality observations of the ocean on long time scales,
- Relevant international organizations such as the Intergovernmental Oceanographic Commission (IOC) and the Group on Earth Observations (GEO) to work together to reach the previous objectives,

Resolves
To continue and amplify national and international research efforts on the proper modeling of the ocean in climatic systems and to contribute fully to societal investigations related to this topic.

Resolution 2:

Future Satellite Gravity and Magnetic Mission Constellations

*The **International Union of Geodesy and Geophysics***

Considering

- The interest and need of the IUGG scientific community to understand processes of global mass transport in the Earth system, and the interaction among its subsystems including continental hydrology, cryosphere, atmosphere, ocean and solid Earth, in order to close the global water budget and to quantify the climate evolution of the Earth,
- The long lead time required to bring an earth observation system into operation,

Acknowledging

- The experience acquired in the last decade within the IUGG in analyzing data from dedicated satellite missions such as CHAMP, GRACE, GOCE and Swarm for the purpose of estimating the gravity and magnetic fields and their time variations,
- The clear expression of need from the user communities so far, and the definition of joint science and user requirements for a future satellite gravity field mission constellation by an international working team under the umbrella of IUGG,

Noting

- The need for a long-term sustained observation of the gravity and magnetic fields and related mass transport processes of the Earth beyond the lifetime of GRACE and the GRACE Follow-On planned for the 2017 - 2022 period, and beyond the lifetime of Swarm, currently 2013 to 2018,
- The demonstrated need for satellite constellations to improve temporal and spatial resolution and to reduce aliasing effects,

Urges

International and national institutions, agencies and governmental bodies in charge of supporting Earth science research to make all efforts to implement long-term satellite gravity and magnetic observation constellations with high accuracy that respond to the aforementioned need for sustained observation.

Resolution 3:

Global Geodetic Reference Frame

*The **International Union of Geodesy and Geophysics***

Considering

- The significant efforts of the International Association of Geodesy in developing and maintaining fundamental geodetic products for scientific and societal benefits, in particular through its Global Geodetic Observing System (GGOS),
- The achievements realized by the UN Global Geospatial Information Management (GGIM) through its Working Group on Global Geodetic Reference Frame (GGRF), in which IUGG played a significant role through its International Association of Geodesy,

Recognizing

The adoption in February 2015 by the General Assembly of the United Nations of a resolution entitled "*A Global Geodetic Reference Frame for Sustainable Development*",

Urges

The UN GGIM GGRF Working Group to engage with the IUGG and other concerned organizations such as the Committee of Earth Observation Satellites (CEOS) and the Group on Earth Observations (GEO), in order to promote the implementation of the UN GGIM GGRF RoadMap,

Resolves

To support the implementation of the intent of the UN resolution.

Resolution 4:

Real-Time GNSS Augmentation of the Tsunami Early Warning System

*The **International Union of Geodesy and Geophysics***

Considering

- That large populations may be impacted by tsunamis generated by megathrust earthquakes,
- That among existing global real-time observational infrastructure, the Global Navigation Satellite Systems (GNSS) can enhance the existing tsunami early warning systems,

Acknowledging

The need to coordinate with the UNESCO Intergovernmental Oceanographic Commission (IOC) and the established intergovernmental coordination framework to define GNSS network requirements, data sharing agreements and a roadmap for the development and integration of the GNSS tsunami early warning augmentation.

Urges

- Operational agencies to exploit fully the real time GNSS capability to augment and improve the accuracy and timeliness of their early warning systems,
- That the GNSS real-time infrastructure be strengthened,
- That appropriate agreements be established for the sharing of real-time GNSS data within the tsunami early warning systems,
- Continued support for analysis and production of operational warning products,

Resolves

- To engage with IUGG member states to promote a GNSS augmentation to the existing tsunami early warning systems.
- Initially to focus upon the Pacific region because the high frequency of tsunami events constitutes a large risk to the region's large populations and economies, by developing a prototype system, together with stakeholders, including scientific, operational, and emergency responders.

Resolution 5:

Geo-Energy Resources

*The **International Union of Geodesy and Geophysics***

Considering

The challenges posed to our planet by climate change, and the international efforts to transition in the next decades towards a low-carbon economy with the aim to limit the global warming to within 2°C with respect to the 1850-1900 average,

Noting

- The crucial role of new renewable energy and electricity sources for the future energy strategy and climate change control,
- The invaluable contribution that science can bring to develop scenarios and identify new technologies and solutions enabling the required transition to a low-carbon economy,
- The challenges posed by the global exploitation of geo-resources, including issues such as induced/triggered seismicity, environmental contamination, and resource supply,

Recognizing

- The Future Earth initiative of the International Council for Science,
- The unique competence of IUGG in climate change consequences as well as renewable geo-resources fundamental for the future energy supply, including hydropower, wind and geothermal energy, and to study scientifically the challenges and risks associated with the exploitation and extraction of new renewables sources of energy and electricity.

Urges

International and national institutions, agencies and governmental bodies to support scientific advancement and new knowledge development in the field of geo-resources,

Resolves

To promote and coordinate scientific contributions needed to limit the impact of climate change and enable the transition to a future low-carbon economy, and to adopt a holistic view covering all aspects from geo-resources to consequences and risks.

Resolution 6:

Geoscience Cooperation

*The **International Union of Geodesy and Geophysics***

Noting

- The increasingly cross-disciplinary nature of geoscience research means that fields that once were distinct now overlap in interests,
- That many important problems in geosciences require the integration of geodesy, geology, geophysics, and other geoscience fields,
- That the IUGG and other geoscience unions are able to serve as a focal point for many of these common interests,
- That the International Union of Geological Sciences has suggested exploring the possibility of organizing a joint geoscientific assembly,

Resolves

- To enhance cooperation and exchange with the other geoscience unions by expanding the formation of joint working groups or commissions,
- To explore the organization of a joint geoscientific assembly.

Resolution 7:

International Scientific Activities and Cooperation

The International Union of Geodesy and Geophysics,

Considering

That opportunities to undertake, evaluate, and apply international scientific research on environmental extremes and their associated impacts useful to society are growing, necessitating and justifying increased support in order to provide maximum benefits for society in both the near- and long-term,

Acknowledging

The need to continue the extensive existing efforts to enhance the worldwide availability of vital information about the global environment, especially through monitoring, service, and commission-focused research efforts and activities,

Noting

The increasing world-wide occurrence and intensities of environmental problems and the disruptions to overall economic well-being and development that have been and could be caused by natural hazards and extremes and the need to be prepared for the increasing potential for new threats to emerge,

Urges

- National and scientific leaders of all nations to recognize the substantial benefits to overall well-being and economic progress, both nationally and globally, that will accrue through advancing scientific understanding of and capabilities for predicting potentially disruptive environmental consequences and extremes,
- National and scientific leaders of all nations to support the active participation of the members of their scientific community in the collective international effort being undertaken by the IUGG and associated scientific unions within ICSU to strengthen and apply research capabilities and findings for public and general economic benefit and the coordination activities necessary to accomplish such efforts,
- Scientists and experts around the world to re-dedicate their efforts better to understand the Earth system and, in this time of increasing stress on the global environment, to make their findings available to the public in the most useful and appropriate ways,

Resolves

To be steadfast in: (1) encouraging and supporting the participation of scientists in international scientific meetings and activities, (2) undertaking efforts to enhance fundamental understanding of geophysical processes and behavior, especially in the grand challenge areas, (3) increasing efforts to utilize scientific understanding for the benefit of society and the environment and for promotion of the economy and societal resilience; and (4) in providing an independent voice in support of undertaking and relying on the most rigorous and well-tested scientific findings.

Resolution 8:

Thanks

*The **International Union of Geodesy and Geophysics***

Resolves

Gratefully to record its appreciation for the organization, arrangements, and hospitality at the XXVI General Assembly. On behalf of all participants, the Council expresses its warm thanks to the Deputy Prime Minister for Science Research and Innovations, the Mayor of Prague and the President of the Academy of Sciences of the Czech Republic, the Local Organizing Committee, the Scientific Program Committee, and all others for making the XXVI General Assembly a scientific success in the beautiful city of Prague.