

GGOS - The IAG's Observing System



The Global Geodetic Observing System (GGOS) has as one of its scientific goals the integration of the geometric and gravimetric aspects of geodesy. It also provides a framework within which IAG services and other IAG components can integrate outputs and generate higher-level products in order to address critical requirements for geoscientific research. As an Observing System, GGOS cannot function without the facilities and products of each of the IAG Services.

The vision of GGOS is: 'Advancing our understanding of the dynamic Earth system by quantifying our planet's changes in space and time'. Successful execution of this vision is only possible if the international scientific community and its related governmental agencies are strongly committed to the mission of GGOS. As a complement to these

technical efforts, GGOS serves as a vehicle of engagement with international governmental and non-governmental organisations, space agencies and national mapping/geodetic institutions. Developing and maintaining these relations ensures optimal use of resources to the benefit of science, and society in general.

GGOS in the IAG

The IAG relies upon GGOS to advocate for improvements in the ground-based geodetic infrastructure of GNSS and DORIS reference stations, VLBI and SLR space geodetic stations, and gravity observatories. It also supports the development of new satellite missions for altimetry, gravity mapping and Earth observation, and promotes the importance of modern geodesy for addressing the needs of science and society for stable spatial, time, and gravimetric reference frames. GGOS focuses attention on how international geodesy needs to evolve in order to deliver an order of magnitude improvement in the quality of its fundamental products. This includes identifying the critical elements of global physical infrastructure, efficient data management, and combined measurement analysis.

The systematic implementation, operation, maintenance, and further development of GGOS must account for the technological challenges of modern geodesy as well as its societal importance. GGOS advocates for the establishment of Earth observing systems, analysis capabilities and stable reference frames, to enable social and economic benefits from the accurate monitoring and prediction of sea-level change, rapid measurement of ground displacement following earthquakes, interpretation of mass transport signatures from temporally varying gravity field models, and others. Scientific and organisational skills are required at the highest level in order to ensure that the IAG Services will continue to provide current and new geodetic data products for science and society.

Structure of GGOS

GGOS leadership is headed by a chair and vice-chair, who liaise with the GGOS Consortium, which serves as the steering and election committee. These are supported by the GGOS Coordinating Board (the decision-making body) and the GGOS Executive Committee (the management board). In turn, all of the aforementioned leadership elements work in concert with the IAG Scientific Services. The GGOS Coordinating Office supports outreach, internal and external coordination, and the daily management of GGOS.

At the heart of GGOS are its Bureaus, each containing working groups and other IAG support services. The Bureau of Networks and Observations (BNO) contains working groups on satellite missions, simulations, and data and information systems. Meanwhile, the Bureau of Products and Standards (BSC) oversees working groups on Earth system modelling and standards, and promoting the development of new geodetic products associated with the three GGOS Themes: Unified Height System, Geohazards Monitoring, and Sea Level Change.