

International Gravity Field Service (IGFS)



Chair: **R. Barzaghi**,

Politecnico di Milano, Italy

riccardo.barzaghi@polimi.it

Director of Central Bureau: **G. Vergos**

Aristotle University of Thessaloniki, Greece

vergos@topo.auth.gr

<http://igfs.topo.auth.gr/>

Objectives

IGFS is a unified "umbrella" IAG service, which will:

- Coordinate collection, validation, archiving and dissemination of gravity field related data
- Coordinate courses, information materials and general public outreach relating to the Earth's gravity field
- Unify gravity products for the needs of GGOS, the Global Geodetic Observing System

The IGFS coordinates the following "Level-1" IAG services:

- BGI (Bureau Gravimetric International), Toulouse, France
- ISG (International Service for the Geoid), Politecnico di Milano, Milano, Italy
- IGETS (International Geodynamics and Earth Tides Service), EOST, Strasbourg, France
- ICGEM (International Center for Global Earth Models), GFZ, Potsdam, Germany
- IDEMS (International Digital Elevation Model Service), ESRI, Redlands, CA, USA

Furthermore, IGFS has one Product Center, namely COST-G (Combination Service for Time-variable Gravity fields) at AIUB, Berne, Switzerland.

The overall goal of IGFS is to coordinate the servicing of the geodetic and geophysical community with gravity field related data, software and information. The combined data of the IGFS entities will include global geopotential models, terrestrial, airborne, satellite and marine gravity observations, Earth tide data, GPS/leveling data, digital models of terrain and bathymetry, as well as ocean gravity field and geoid from satellite altimetry. Both the static and the temporal variations of the gravity field will be covered by the IGFS.

IGFS will – in cooperation with the Services - make a special effort in trying to secure release of data from national and international institutions holding data on the spatial and temporal gravity variations, geoid and the surface heights of the Earth, to make them widely available to the scientific community.

IGFS will coordinate regional conferences, tutorials and schools to train young scientists and members of national institutions in the various aspects of the gravity field science, computations, and data collection. IGFS will maintain a publication activity related to the gravity field, especially through "Newton's Bulletin".

IGFS will coordinate regional conferences, tutorials and schools to train young scientists and members of national institutions in the various aspects of the gravity field science, computations, and data collection. IGFS will maintain a publication activity related to the gravity field, especially through "Newton's Bulletin".

Structure

The Service is organized by means of the following structure:

- Advisory Board
- Central Bureau
- Product Centers
- Services

The Advisory Board is composed of:

- Directors (or their delegates) of each of the Services/Centers of IGFS
- Chairs of the IGFS working groups
- Presidents (or their delegates) of the IAG Commissions related to the Service work
- A representative of the IAG Executive Committee (IAG- EC)
- Members appointed among the IAG affiliates.

The Advisory Board:

- Coordinates the scientific strategy
- Coordinates the joint activity of the Centers
- Oversees the participation of the Service in international projects
- Presents to the IAG-EC proposals for associating new centers

- Elects the IGFS affiliates upon nomination by the Services/Centers or affiliates.

The Advisory Board is appointed for four years between IUGG General Assemblies. The existing Advisory Board selects new members as required and nominates the Chair of the IGFS. The election is to be confirmed by the IAG-EC. The Advisory Board makes decisions by majority vote; it can also vote by email. The Advisory Board decides the Terms of Reference for IGFS.

IGFS Services and Centers

The IGFS Services and Centers are the “operating arms” of IGFS. They are committed to produce services and products related to the gravity field of the Earth and/or the planets and are approved by the IAG-EC. Services and Centers can include bodies of structures external to the IAG (e.g., the BGI which is reporting to FAGS). They will have their own governing bodies, nominated according to internal rules, also taking into account the interests of the supporting entities. In particular, each governing body will have a Director, elected according to internal rules.

Services and Centers will maintain a list of data and products, providing them to the general public according to their policy of dissemination. They will deliver services in the form of data archiving, data analysis and dissemination, software, training on gravity field estimation, support to field campaigns etc. COST-G, the IGFS Product Center, will provide consolidated monthly global gravity field models in terms of spherical harmonic coefficients and derived grids by combining solutions from individual Analysis Centers. The activities of each Service/Center will be reviewed annually by the IAG-EC.

IGFS Central Bureau

The IGFS Central Bureau will act as the central coordination and communication center of the IGFS. The Central Bureau will provide: a link between the IGFS entities, IAG, and external projects, networks or organizations (oceanic, atmospheric, hydrologic...); a link to the GGOS Bureaus in order to communicate their requirements and recommendations to the IGFS Services. It will also implement standards and recommendations related to gravity field observations, secure consistency with geometric standards and promote their use within the geoscience community. Furthermore, the Central Bureau will maintain the IGFS website and arrange gravity field related meetings and workshops.

Working groups

JWG GGOS 0.1.3: Implementation of the International Height Reference Frame (IHRF) (joint with GGOS, Commission 1, Commission 2, ICCT)

JWG GGOS: Towards a consistent set of parameters for the definition of a new GRS (joint with GGOS, Commissions 1, Commission 2, ICCT, IERS Committee on EGV)

JSG T26: Geoid/quasi-geoid modelling for the realization of the geopotential height datum (joint with Commission 2, GGOS, ICCT)

JSG T.37: Theory and methods related to the combination of high-resolution topographic/bathymetric models in geodesy (joint with ICCT, IDEMS)

IGFS Advisory Board

- *H. Abd-Elmotaal* (Egypt)
- *J.-P. Barriot* (French Polynesia)
- *S. Bonvalot* (France)
- *S. Bettadpur* (USA)
- *R. Forsberg* (Denmark)
- *Y. Fukuda* (Japan)
- *T. Gruber* (Germany)
- *J. Huang* (Canada)
- *E. S. Ince* (Germany)
- *A. Jäggi* (Switzerland)
- *K. Kelly* (USA)
- *U. Marti* (Switzerland)
- *T. Otsubo* (Japan)
- *R. Pail* (Germany)
- *M. Reguzzoni* (Italy)
- *M. G. Sideris* (Canada)
- *L. Sanchez* (Germany/Columbia)
- *I. N. Tziavos* (Greece)
- *L. Vitushkin* (Russia)
- *Y. Wang* (USA)
- *H. Wziontek* (Germany)