International Service for the Geoid (ISG)

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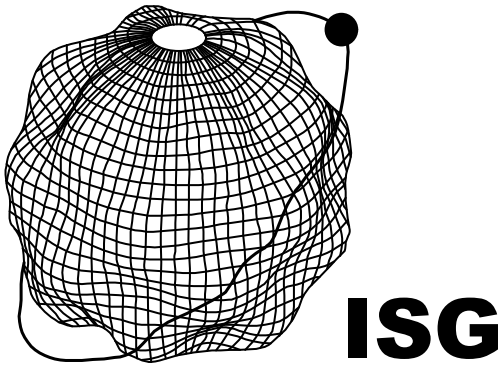
Director: Daniela Carrion (Italy)

ISG website - https://www.isgeoid.polimi.it/



1 Introduction

The International Service for the Geoid (ISG) was established in 1992 with the former name International Geoid Service (IGeS), as a working arm of International Geoid Commission (IGeC). It is actually an official Service of the IAG under the "umbrella" of the International Gravity Field Service (IGFS). It aims at collecting, analysing, and redistributing local, regional, and continental geoid models and providing technical support to people involved in geoid-related topics for both educational and research purposes. In the framework of its activities, ISG performs research taking advantage of its archive and organizes seminars and specific training courses on geoid determination, supports students and researchers in geodesy as well as distributes training material on the most common algorithms for geoid estimation [17].

2 Mission, Objectives

The main tasks of ISG are:

- to collect geoid estimates worldwide, when possible validate them, and disseminate them upon request among the scientific community. Other auxiliary data useful for the geoid determination may also be collected by ISG, without redistributing data that are already provided by other IAG Services;
- to collect, test and - when allowed - distribute software for the geoid determination;
- to conduct researches on methods for the geoid determination, also defining optimal procedures for merging all available data and models;
- to organize international schools on geoid determination addressing both theoretical and practical topics, possibly every two years. During the schools, students are trained in the use of the relevant software for geoid computation;
- to support agencies or scientists in computing local and regional geoid models, especially in developing countries, also organizing special training courses;
- to disseminate training material and software on geoid computation, e.g. lecture notes of the schools;
- to issue the Newton's Bulletin, which is of technical and applied nature, collecting papers and reports on gravity and geoid;
- to establish and maintain a website to present the Service activities, show and distribute the geoid models, software and publications, offer web services for the manipulation and exploitation of the geoid models, announce news and international schools on geoid determination.

Data and software given to ISG remain property of the authors, who decide upon the conditions of use and can allow, restrict or deny their distribution. ISG itself can indeed perform geoid computations within different projects, while remaining a non-profit institution.

3 Products

- Database of local and regional geoid models, in the form of grids or sparse points, stored and distributed in a homogeneous file format, with digital object identifiers (DOIs) assigned in collaboration with GFZ Data Services;
- Software archive for local geoid estimation, for terrain gravity effect calculation and for handling global models;
- Documentation on available data and software;
- International schools and on request training courses on geoid computation;
- Lecture notes and other geoid related publications;
- Newton's Bulletin and the former IGeS Bulletin;
- Research results on gravity and geoid matters.

4 Program/Activities (2023-2027)

Beyond institutional activities, the following research topics are worth mentioning:

- computation of improved geoids for Italy and the Mediterranean area;
- integration of ground, airborne, shipborne and satellite gravity data for geoid modelling;
- integration of local, regional, continental and global geoid models;
- participation within IGFS to the validation of new global gravity models, the study of the height datum unification problem, as well as the realization of the International Height Reference Frame (IHRF);
- participation within GGOS to the fostering of DOIs assignment to geodetic data and models;
- study of improved methodologies for the determination of the geoid at local and global level.

5 Structure

ISG is an official IAG Service, coordinated by IGFS and is also related to the activities of the IAG Commission 2 - Gravity Field. Its structure, tools and activities are illustrated in the ISG reports to the Advisory Board of IGFS.

The Service is hosted by the Department of Civil and Environmental Engineering at Politecnico di Milano. ISG staff is currently composed of researchers and a secretary. They nominate, upon recommendation of IGFS, a President for the international representation and a Director for the operative management. In addition, the ISG Advisory Board are scientists who have/had an outstanding activity in the field of geoid determination and can also represent ISG in both research and teaching activities. Finally, within the ISG structure, Working Groups can be established for specific purposes, limited in time.

Staff (2023-2027)

- M. Reguzzoni (Italy); President (also Repr. to the IHRF-CC Directing Board)
- D. Carrion (Italy); Director
- F. Sansò (Italy); Past President
- R. Barzaghi (Italy); Past President
- G. Sona (Italy); Past Director
- A. Albertella (Italy)
- C. I. De Gaetani (Italy)
- L. Rossi (Italy)
- K. Batsukh (Italy)
- C. Vajani (Italy); Secretary

Advisory Board (2023-2027)

- N. Pavlis (USA)

- M. Sideris (Canada)
- J. Huang (Canada)
- R. Forsberg (Denmark)
- J. Ågren (Sweden)
- U. Marti (Switzerland); Repr. to GGOS Governing Board
- L. Sánchez (Germany)
- K. Elger (Germany)
- I. Tziavos (Greece)
- D. Blitzkow (Brazil)
- H. Abd-Elmotaal (Egypt)
- C. Hwang (China-Taipei); IAG Repr. to ISG

Product, Data and Analysis Centers

Data storage and processing centers are implemented through the Information and Communication Technology (ICT) services of Politecnico di Milano.

6 Point of Contact

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