



International Service for the Geoid (ISG)

website: <http://www.isgeoid.polimi.it>

President: **M. Reguzzoni** (Italy)

Director: **G. Sona** (Italy)

Mission / Objectives

The main tasks of ISG are:

- to collect geoid estimates worldwide, when possible to validate them and to disseminate them upon request among the scientific community: other auxiliary data can also be collected by ISG, when useful for the geoid determination, and might be made available with the sharp exclusion of gravity anomaly data,
- to collect, test and, when allowed, to distribute software for the geoid determination,
- to conduct researches on methods for the geoid determination, particularly trying to define optimal procedures for merging all the available data, including satellite gravity,
- to organize schools on geoid determination where both theoretical and practical aspects are illustrated. During the schools, students are trained in the use of the relevant software for geoid computation,
- to issue, possibly once per year, the Newton's Bulletin, collecting papers on gravity and geoid. Also, news and results from the other IGFS Centres are welcome,
- to disseminate special publications on geoid computations, e.g. lecture notes of the schools,
- to establish and update a webpage and a forum for discussing practical and theoretical aspects on geoid computation,
- to support Agencies or scientists in computing regional geoids.

The Newton's Bulletin has a technical and applied nature and will not accept papers that could be published in the Journal of Geodesy.

Data and software given to ISG remain property of the source, which can dictate the conditions of use and restrict their distribution. ISG itself can indeed perform geoid computations within different projects, but not in economic competition with Firms or Public Organizations institutionally devoted to that.

Products

- Software for handling global models,
- Software for the local geoid estimation,
- Software for the evaluation of different functionals of the gravity field,
- Grids of local and regional geoid estimates, for specific areas and delivered in a specific file format,
- Documentation on software and data,
- Newton's Bulletin,
- Lecture notes and special publications,
- International Schools on geoid computation.

Future Programs/Development

Beyond institutional activities, the following ISG programs are worth of specific mention:

- computation of improved geoids for Italy and the Mediterranean area,
- support to local and regional geoid computations, especially in developing countries,
- integration of ground, air-borne, ship-borne and satellite gravity data for geoid modelling,
- participation within GGOS to the study of the height datum unification problem,
- participation within IGFS to the validation of new global gravity models,
- participation to a Joint Working Group of the IAG Commission 2 on "Integration and validation of local geoid estimates",
- study of improved methodologies for the determination of the geoid at global and local level,
- organization of International Geoid Schools, possibly one every two years.

Structure

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

The Service is for the moment provided by two Centres, one at the Politecnico di Milano and the other at NGA. The ISG Milano Centre is supported by Italian authorities, which nominate upon recommendation of IGFS, a President for its international representation and a Director for the operative management. In addition the ISG advisors are individual members of ISG, which have or have had an outstanding activity in the field of geoid determination and can also represent ISG in both research and teaching activities.

At present the following distinguished scientists are ISG advisors:

- N. Pavlis (USA)
- M. Sideris (Canada)
- J. Huang (Canada)
- R. Forsberg (Denmark)
- U. Marti (Switzerland)
- H. Denker (Germany)
- L. Sánchez (Germany)
- I. Tziavos (Greece)
- W. Kearsley (Australia)
- D. Blitzkow (Brazil)

Finally, within the structure of ISG, Working Groups can be established for specific purposes, limited in time.