GravIS
Gravity Information Service

TERRESTRIAL WATER STORAGE — GROUNDWATER STORAGE — OCEAN BOTTOM PRESSURE — ANTARCTIC ICE-MASS CHANGE — GREENLAND ICE-MASS CHANGE

Welcome to GravIS, the Gravity Information Service of the German Research Centre for Geosciences (GFZ), in collabora... and Technische Universität Dresden. Data products derived from the gravimetric Earth observation satellite missions G... scientists and other interested users to study mass variations in the Earth system. However, processing of GRACE/GRAC... dedicated geophysical applications is nontrivial, neither when starting from original satellite observations nor from the... enable the usage of satellite gravimetry data for a broader community, user-friendly ('Level-3') products are generated...

GravIS visualizes and describes Level-3 products based on the most recent GRACE and GRACE-FO data release from GF... the most recent release of combined models for GRACE and GRACE-FO from COST-G are offered as well. The products... download at GFZ's Information System and Data Center (ISDC).

The Gravity Recovery and Climate Experiment (GRACE; 2002 - 2017) an... its Follow-On mission (GRACE-FO; launched in May 2018) typically provide monthly independent estimates of the Earth's global gravity field. Differences between consecutive months are caused by mass... redistribution and mass transport in the Earth system, particularl... geophysical fluid layers of the atmosphere, oceans, and contine... hydrosphere.

GRACE/GRACE-FO data processing is structured into senso... (Level-0 to Level-1), global gravity field estimation (Leve... and geophysical mass anomaly inversion (Level-2 to L... products at GravIS comprise gridded mass anomal... average time series and are available for terrestr... non-glaciated regions, bottom pressure vari... mass changes in both Antarctica and G... also provides products of a prototyp... storage anomalies which wa... project Global Gravity-b... achieve the high... post-p...

Terrestrial Water Storage

Ocean Bottom Pressure

https://plot.cost-g.org/
http://gravis.gfz-potsdam.de/
http://icgem.gfz-potsdam.de/

COST-G Plotter

GravIS

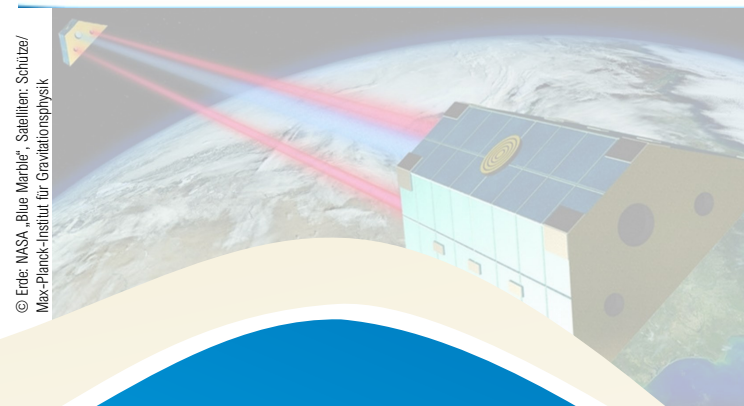## Partners

- GFZ German Research Centre for Geosciences, Germany (GFZ)
- Centre National d'Études Spatiales, France (CNES)
- University of Bern, Switzerland (AIUB)
- Graz University of Technology, Austria (TUG)
- Leibniz Universität Hannover, Germany (LUH)
- Alfred-Wegener-Institut, Germany (AWI)
- Technical University Dresden, Germany (TUD)
- Stellar Space Studies

International Association of Geodesy
IAG
I G F S

Enhance your research

COST-G
Combination Service for Time-variable Gravity Fields

© Erde: NASA „Blue Marble", Satelliten: Schütze/ Max-Planck-Institut für Gravitationsphysik

Easy accessibility

The COST-G plotter is an easy and convenient way to look at and evaluate the data products of the ACs and other partner centres as well as the combined solutions generated at the University of Bern (AIUB).

GravIS, the Gravity Information Service of GFZ in collaboration with AWI and TUD, enables the usage of satellite gravimetry data for a broader community. **User-friendly and ready-to-use products ('Level-3') are generated and visualized based on the most recent GRACE and GRACE-FO data releases from GFZ and COST-G.** The products presented at GravIS are available for download at GFZ's Information System and Data Center (ISDC).

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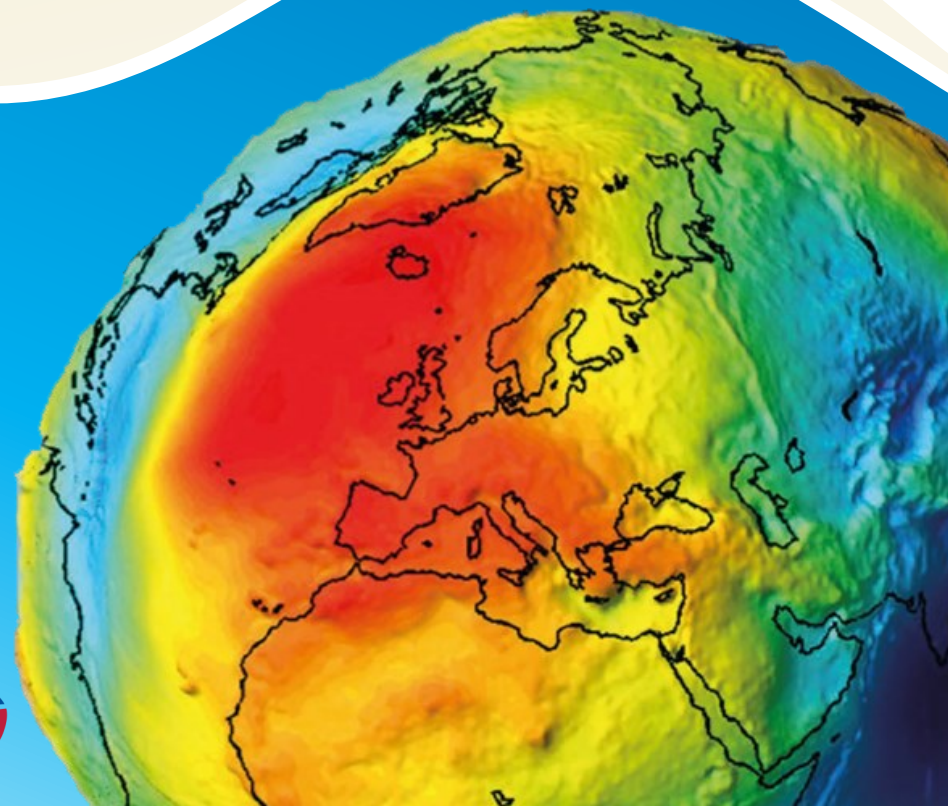
COST-G

COST-G:
a service to the community

Earth observation satellites yield a wealth of data for scientific and commercial exploitation. **The International Combination Service for Time-variable Gravity Fields (COST-G) is dedicated to provide the best available global gravity field model by combining monthly global gravity field models from a number of analysis centers (ACs).**

COST-G is a product center of IAG's International Gravity Field Service (IGFS) and stems from the activities of the former H2020 project European Gravity Service for Improved Emergency Management (EGSIEM). Its development was continued within the follow-up H2020 project Global Gravity-Based Groundwater Product (G3P).

Space gravimetry is the only tool capable of observing the Essential Climate Variable (ECV) *Terrestrial Water Storage* **globally in the Earth system.**

Advanced data products

COST-G combines monthly gravity field solutions of various ACs including

GFZ	LUH
AIUB	JPL
TUG	CSR
CNES	and many more ...

Solutions are provided for GRACE, GRACE-FO and Swarm. The combination procedure consists of four major steps:

1. *Harmonization:* the various solutions are common reference frames and background models.

2. *Quality control:* the signal content as well as the noise content is evaluated in order to eliminate biased solutions and/or outliers.

Combination Process

Harmonization	Quality Control	Combination
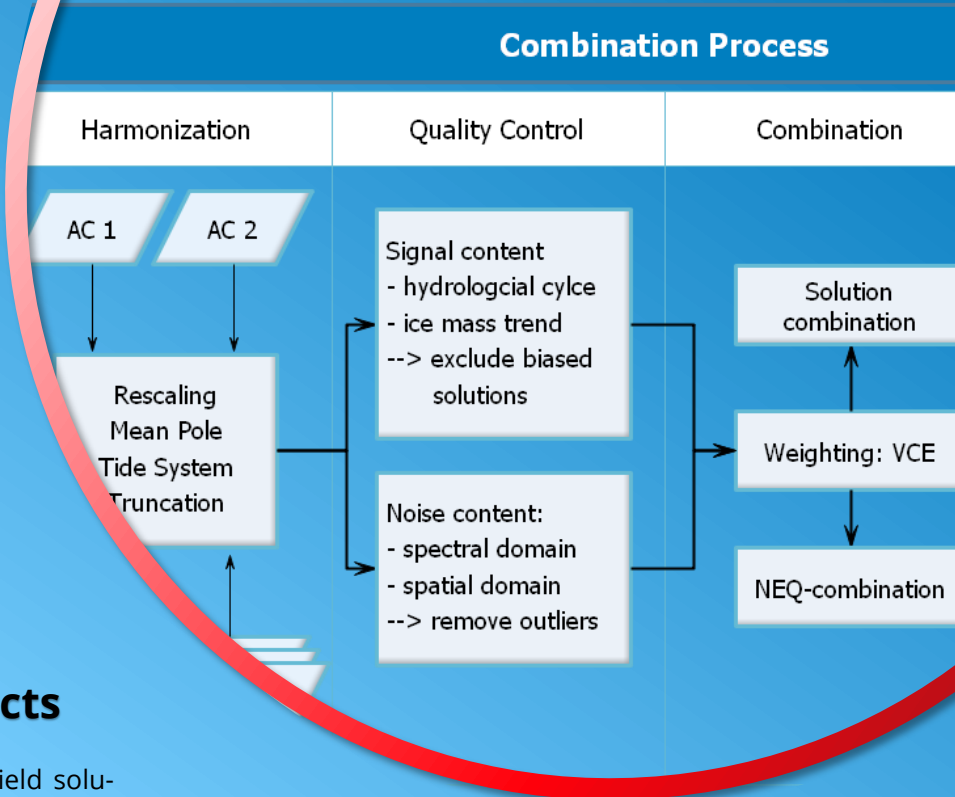
3. *Combination* is performed on solution level, i.e. the spherical harmonic coefficients are combined using variance component estimation (VCE) .

4. *Internal and external validation* ensure the quality of the product.

Users get a cutting-edge product based on state-of-the-art statistical procedures eliminating the daring question which product on the market to choose. COST-G combines the strengths of all available solutions and its validation procedures guarantee a reliable and most advanced product. COST-G gravity field models are provided at the International Centre for Global Earth Models (ICGEM).