Deutsches Geodätisches Forschungsinstitut (DGFI-TUM)
Technische Universität München

The GGOS Bureau of Products and Standards: Description and Promotion of Geodetic Products

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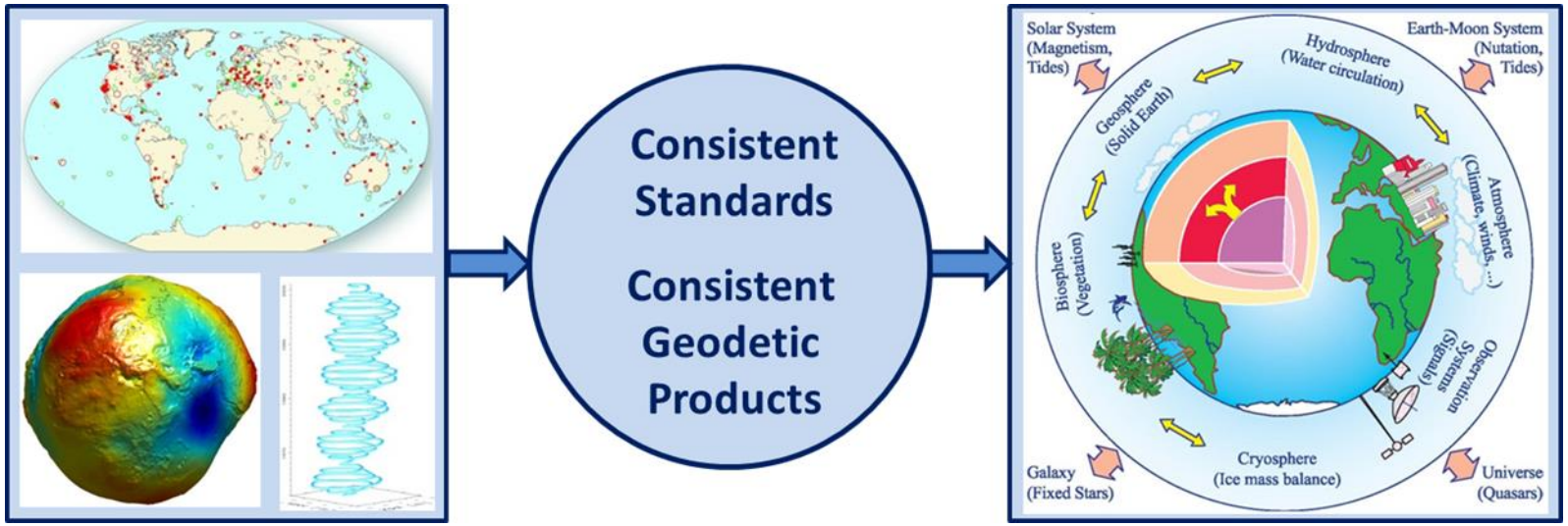
GGOS Bureau of Products and Standards (BPS)

The BPS supports GGOS in its key goal to obtain consistent products describing the geometry, rotation and gravity field of the Earth.

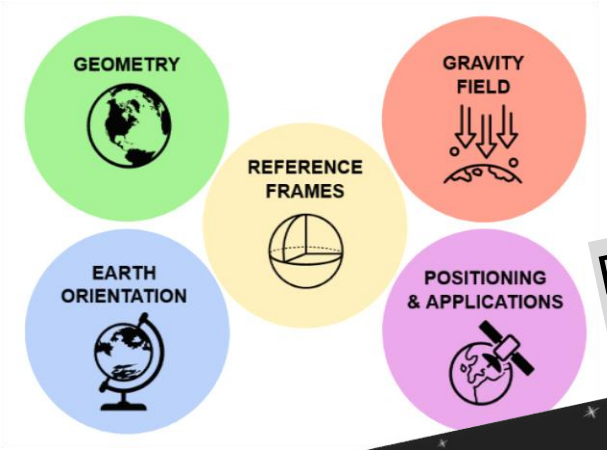
Objectives

- contact and coordinating point for homogenization of IAG standards and products
- keep track of the adopted geodetic standards and conventions across all IAG components
- stimulate the development of new geodetic products, needed for Earth sciences and society
- **promote geodetic products** (see GGOS website, www.ggos.org)



Product descriptions at GGOS website

Geodetic Themes



Earth System Components & Space

- 23 product descriptions finished
- Further descriptions will follow

Top Products	Visits
Sea Surface Heights	1606
TRF - Terrestrial Reference Frame	1316
CRF - Celestial Reference Frame	1294
EOP - Earth Orientation Parameters	1199
DEM - Digital Elevation Model	852
GRF - Gravity Reference Frame	811
Satellite Orbits and Clocks	796
Height Systems	729

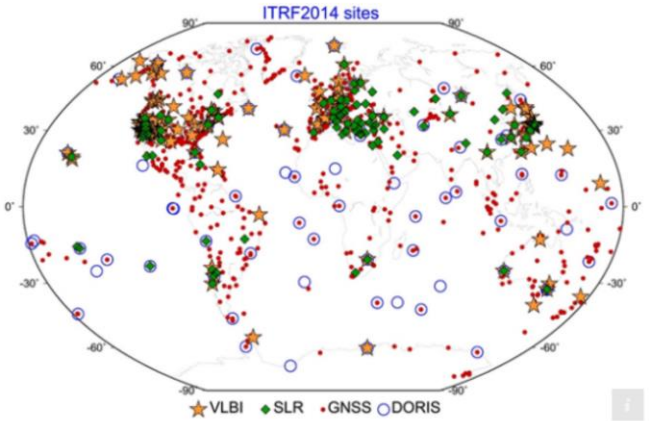
www.ggos.org/**products**

Product description „Terrestrial Reference Frame“

Terrestrial Reference Frame

How can we provide a stable reference for measuring changes of our planet?

The International Association of Geodesy (IAG) recommends the International Terrestrial Reference Frame (ITRF) as the **standard terrestrial reference frame** for **positioning, satellite navigation and Earth science applications**, as well as for the definition and alignment of national and regional reference frames (see IAG Resolution No. 1, 2019). The importance of geodetic reference frames has been recognized by the United Nations, too. In February 2015, the UN General Assembly adopted its first geospatial resolution "A Global Geodetic Reference Frame for Sustainable Development".



ITRF station distribution [Source: Altamimi et al., 2016]

Read More ...

Data Sources

ITRS CENTRE

The ITRS Centre is responsible for the maintenance of the International Terrestrial Reference System (ITRS) and the International Terrestrial Reference Frame (ITRF). It is maintenanced by the IGN in France.

IERS

International Earth Rotation and Reference Systems Service

Further Information

Altamimi Z., P. Rebischung, L. Métivier, X. Collilieux. ITRF2014: A new release of the International Terrestrial Reference Frame modeling nonlinear station motions. Journal of Geophysical Research: Solid Earth 121.8, pp. 6109-6131, DOI: 10.1002/2016JB013098, 2016.

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Geodetic products and „appetizer questions“ (some examples)

Reference Frames


Height Reference Frame


Celestial Reference Frame

How can we link Earth and space?


Gravity Reference Frame


Terrestrial Reference Frame

How can we provide a stable reference for measuring changes of our planet?

Geometry


Surface Deformation Models

Why is the Earth‘s surface in constant change?


Ocean Topography Models


Sea Level Change

How fast is the sea level rising?


Digital Elevation Model


Ice Sheets & Glaciers – Variations

How fast is the ice being lost in Greenland and Antarctica?


Station Positions & Variations


Tide Gauge Records


Sea Surface Heights

How can the height of oceans be observed?

Earth Orientation


Earth Orientation Parameters

Why are the days getting longer and the Earth is wobbling?

Gravity Field


Global Gravity Field – Models


Gravity Field – Temporal Variations

Why is the Earth‘s gravity field variable?


Terrestrial Gravity Data


Regional / Local Geoid Models

What is a geoid and why is it needed?


Ice Sheets & Glaciers – Variations


Height Systems

Why are height systems so important?

Positioning & Applications


Thermosphere

How does the atmosphere influence low-flying satellites?


Ionosphere


Lower Neutral Atmosphere

How can geodesy contribute to weather prediction?


Atmospheric Products

Final remarks and acknowledgements

- The renewed GGOS website provides an „**entrance door**“ and central access point to geodetic products.
- The efforts of the **IAG Services** and **other data providers** for generating the geodetic products and making them openly available are gratefully acknowledged.
- The product descriptions have been reviewed by the **GGOS Science Panel** and **other experts in the field**.
- With these product descriptions, the **BPS supports GGOS in making geodesy more visible** to other disciplines and to society (**Outreach**).
- Please visit the GGOS Video on YouTube **„Discover GGOS and Geodesy“**

  https://www.youtube.com/watch?v=Jwqz097N2IY&t=129s

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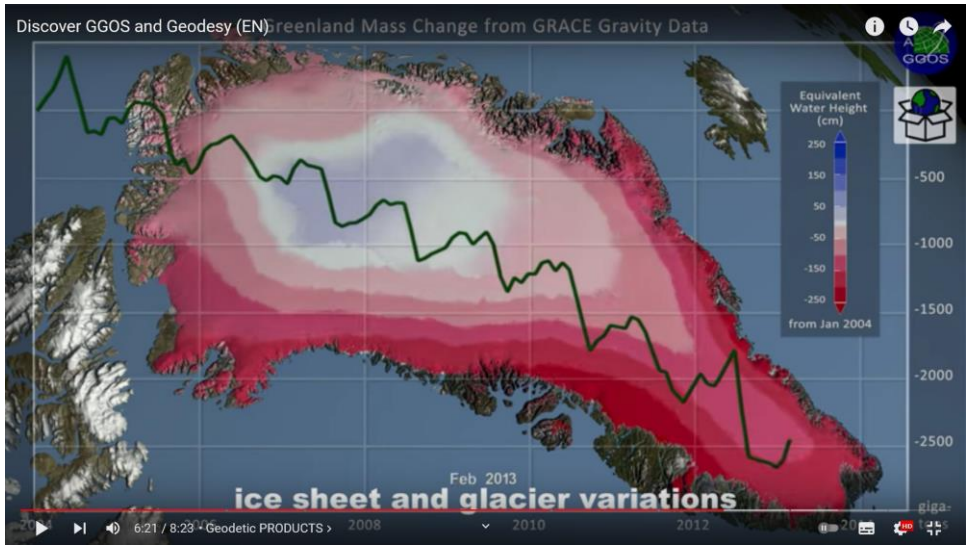

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