Working Group on Absolute Gravimetry

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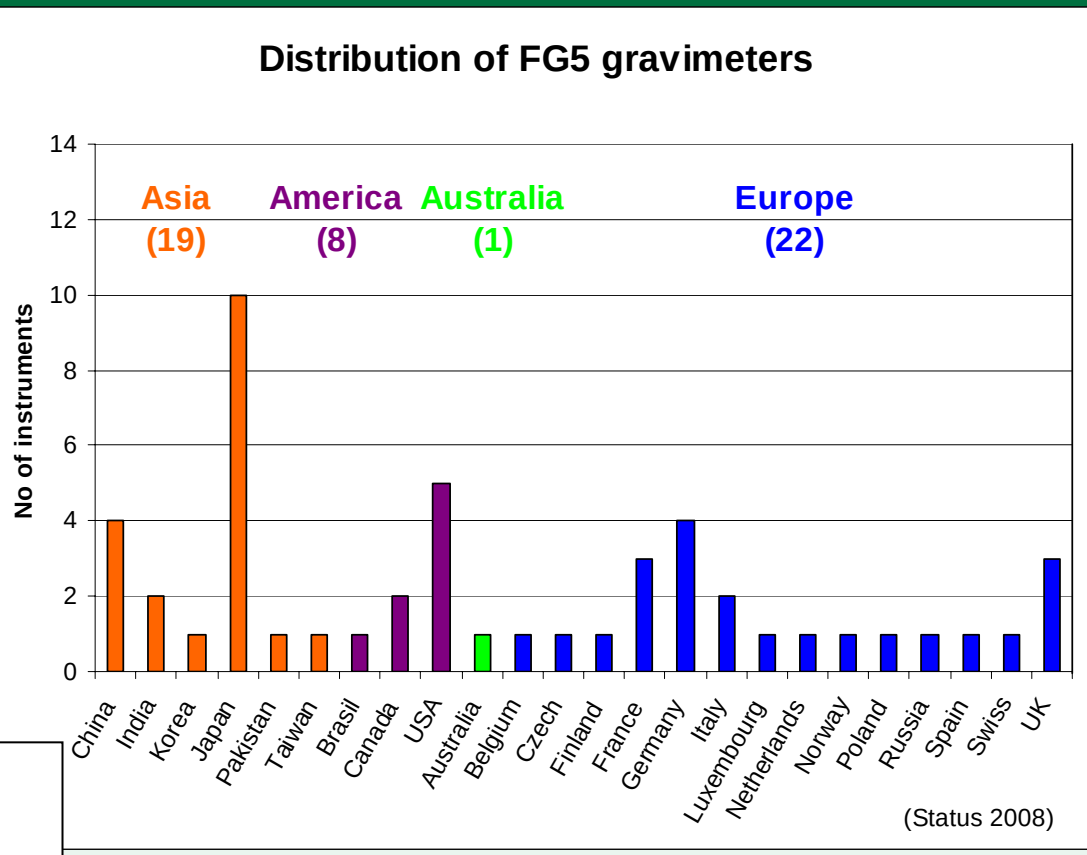
Present situation in absolute gravimetry

- Many AG worldwide in operation: < 50 of highest resolution
- Growing number of AG sites and observations
- Information about stations and observations quite limited
- Metrological (SI) standards are introduced via the four-yearly ICAGs at BIPM (mutual recognition agreement)
- Regional comparisons of AG (e.g. Walferdange) (Instrument checks and relative offset determination) (How reliable is the time-series of ICAGs and RCAGs?)
- No agreed standard procedures for AG observations and processing parameters and models
- Can the “g-software” be used as a processing convention and is it up-to-date enough?
- Instrument accuracy is much better today than the valid gravity reference system (IGSN71)

Growing number of absolute gravimeters



Complemented by other instrument types: e.g. JILA-G, A10, IMGC, GABL, Sakuma, Faller etc.

Owners:

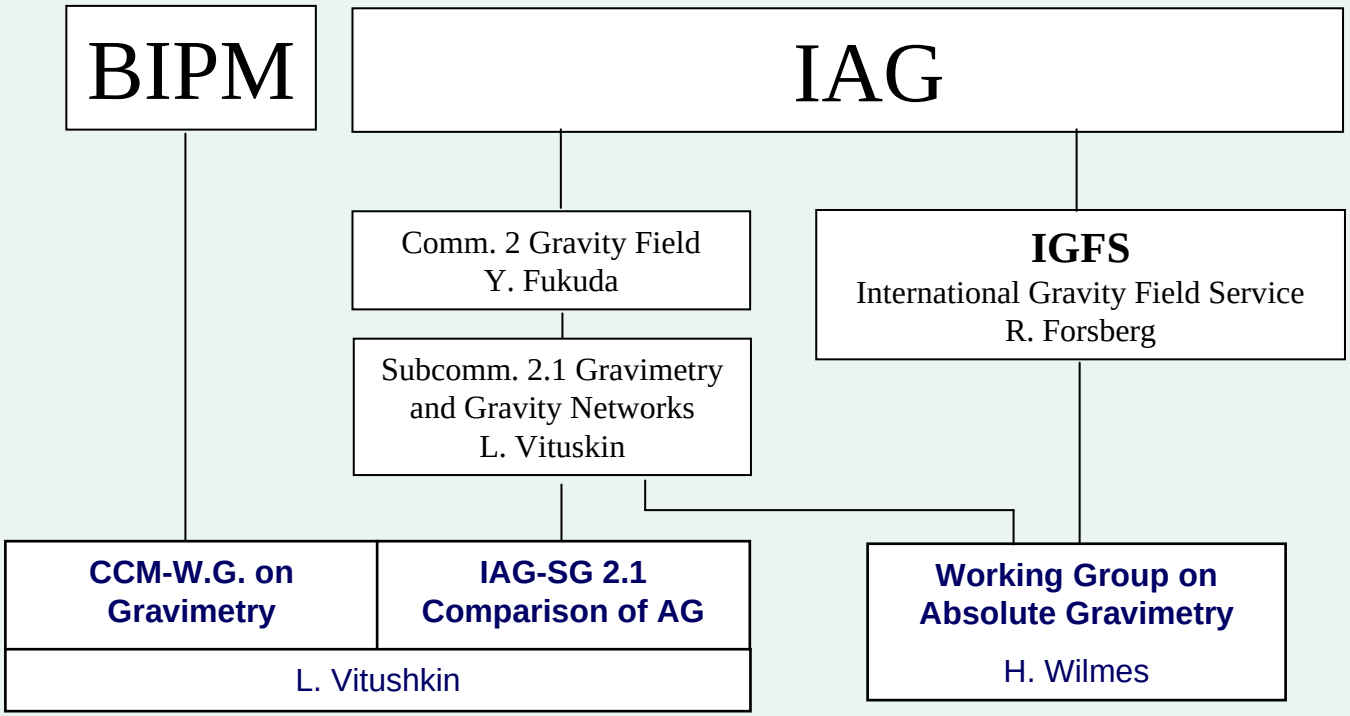
- **Metrological,**
- **Geodetic,**
- **Geologic and**
- **Geophysical Institutions**

For stations with changing gravity the value of the data grows with time!
Data should be preserved for the community.

Working Group on Absolute Gravimetry

WG

- **Established under the umbrella of the "International Gravity Field Service IGFS" and under "IAG Sub-Commission Gravimetry and Gravity Networks"**
- **In conjunction with other IGFS services (BGI etc.)**



Aims of the WG on Absolute Gravimetry

- **Aims of the Working Group on Absolute Gravimetry:**
  - **Database for AG stations and observations**
  - **Coordination of activities**
  - **Standards and conventions**
  - **Connection of the Agrav database with the GGP database**

Bundesamt für Kartographie und Geodäsie

Aims of the WG on Absolute Gravimetry

- Set up and operate database for AG stations and observations for
  - Information about stations, observations, instruments and institutions and coordination of activities
  - Information about specific projects and exchange of AG data between contributing groups
  - Safe data storage for long-term use
  - Presentation of AG observation techniques to the outside community and provision of metadata and contact information

AGrav database

http://agrav.bkg.bund.de

http://bgi.dtp.obs-mip.fr

How can the owner of AG data provide his information about the AG observations?

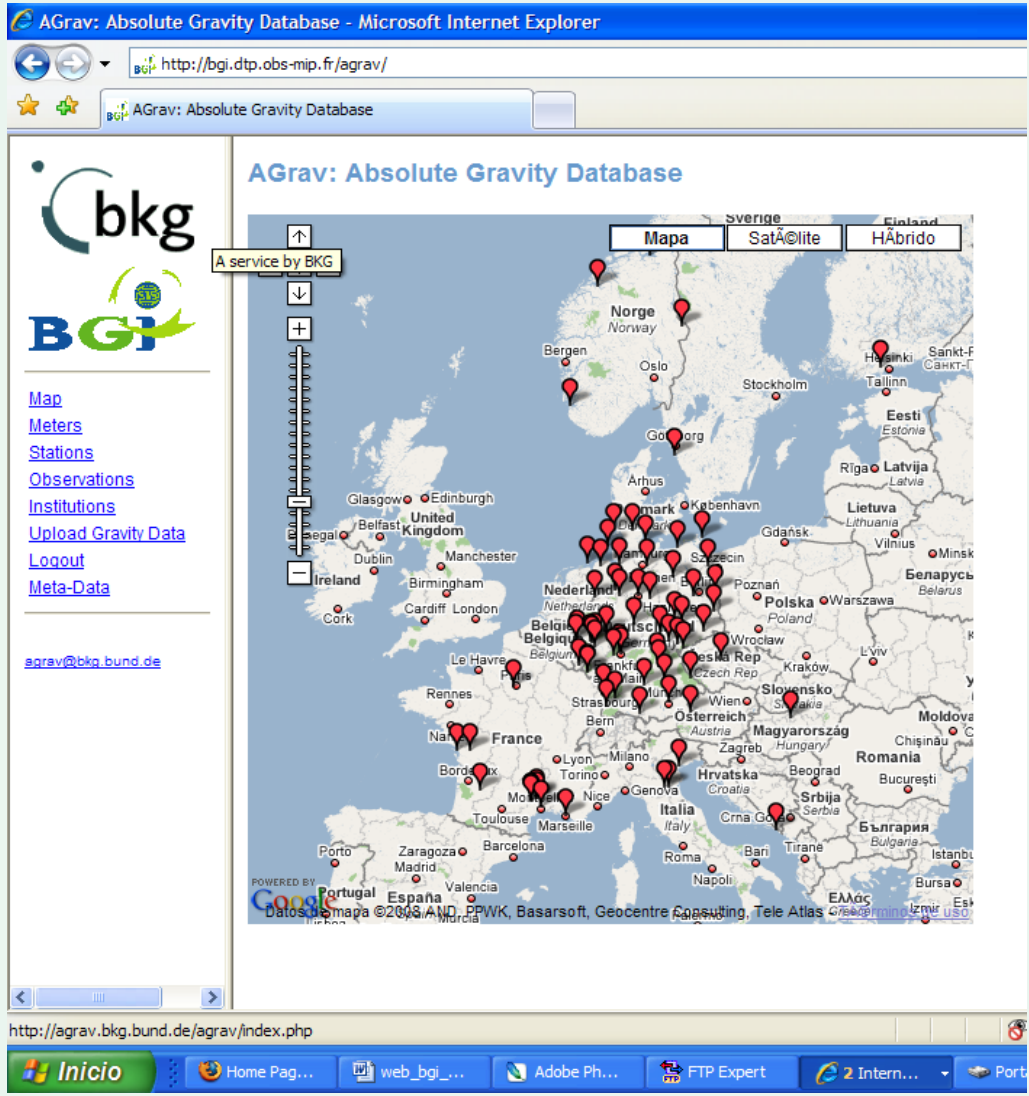
Provision of absolute gravity data to the database is possible in different levels

(1)Station location only in the database

(2)Station location and observation epochs: database users can get in contact with the data owner

(3)AG results un the database: external users can see the gravity values with 1 mGal resolution only; for contributing users the full results are visible

Map-based graphical interface



„Project“-file for entry to the database

```
Micro-g Solutions g Processing Report
File Created: 02/20/06, 09:50:22

Project Name: BHG_AA_101_N_290605b
g Acquisition Version:  4.0310
g Processing Version:  4.0416

Company/Institution:
Operator: Hoppe

Station Data
Name: Bad Homburg
Site Code: BHG
Lat:  50.22860 Long:    8.61100 Elev:  188.00 m
Reference Height: 14.00 cm
Datum Height: 125.00 cm
Gradient: -3.030 uGal/cm
Nominal Air Pressure:  990.87 mBar
Barometric Admittance Factor:  0.30
Polar Motion Coord: -0.0399 " 0.3959 "
Earth Tide (ETGTAB) Selected
Potential Filename: D:\Absolutravimetrie\ETCPOT.DAT
Delta Factor Filename: D:\Absolutravimetrie\OceanLoad_Bad_Homburg.dff
Delta Factors
     Start    Stop      Amplitude     Phase Term
  0.000000  0.002427   1.000000    0.0000 DC
  0.002428  0.249951   1.160000    0.0000 Long
  0.721500  0.906315   1.154250    0.0000 Q1
  0.921941  0.974188   1.154240    0.0000 O1
  0.989049  0.998028   1.149150    0.0000 P1
```

AGrav database

Which are the next steps?

- AGrav database is open for entering information about stations, observation epochs and /or results
- Test the upload feature and send your comments

Aims of the WG on Absolute Gravimetry

- Set up conventions for AG observation and processing
  - compile presently used parameters and corrections: starting from IAGBN standards via “g-software”, etc. (compile the setting with their references)
  - collect newly developed models (for hydrology, atmosphere, ocean loading, ...)
  - initiate discussion about the best settings
  - propose AG conventions for a general use

- Who can contribute to a compilation of standards, parameters and models? IAGBN standards and further complementation e.g. in national networks or in international projects

Aims of the WG on Absolute Gravimetry

- **Enable the cooperation with GGP project of superconducting gravimeters by collecting time-dependent AG measurements at the SG sites in the AGrav database**
- **Realise AG sites in connection with permanent space geodetic sensors (GNSS, SLR and VLBI) (Integrated geodetic networks / GGOS).**

Thank you for your attention!