IERS and GGOS

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History of IERS

Roots going back to
1887 „ European Gradmessung “, Potsdam
1895 „ International Latitude Service – ILS “, Berlin

1911 „ International Bureau de l‘Heure“, Paris,

1962 „ International Polar Motion Service “,

1987 „ International Earth Rotation Service“, Paris, replaces the IPMS and the section „Earth rotation“ of the Bureau International de l'Heure (BIH),
Service of IAU and IUGG, member of FAGS

2000 Reorganisation of IERS after external review

IERS was given the missions:

to define and maintain a terrestrial reference system based on the most precise space geodesy techniques

to monitor the Earth's orientation parameters

to define and maintain a celestial reference system based on the directions of extragalactic radio sources and its tie to other celestial reference frames

IERS Products

IERS products, based mainly on results of the space geodetic techniques:

- for scientific as well as for practical applications,
- maintain the long-term stability by combination of space geodetic techniques,
  - in time,
  - quality controlled,
- accessible by an user friendly information and data system.

Structure of the IERS

Product Centres

- Earth Orientation
  Observatoire Paris
- Rapid Service / Prediction
  US Naval Observatory
- International Celestial Reference System
  US Naval Observatory
- International Terrestrial Reference System
  IGN France
- Global Geophysical Fluids chaired by
  ECGS Luxembourg
- Conventions
  BIPM

Analysis Coordinator
GFZ

Combination Research Centres
Chaired by GFZ

ITRS Combination Centres
IGN, DGFI, NRCan

Central Bureau IERS Database
BKG

Technique Centres (External Services)

- IGS
- ILRS
- IVS
- IDS

IERS Products

Rapid Service	time series daily – orbit determination
EOP	time series weekly up to yearly
ITRF	terrestrial coordinates, velocities 1 – 4 years
ICRF	celestial coordinates ... years
Conventions	publications 3 - 8 years, annually
GGFC	various data series (daily - ...)

Role of IERS in GGOS

- Combination Service for geometry and rotation
  - consistent, stable ITRF, EOP, ICRF
  - technique-independent (except ICRF)
  - products for scientific and practical uses
- IERS Conventions
  - interface with GGOS Geodetic Standards
- Data Center
  - rapid updates and distribution of EOP products
  - historical record (archive of IERS products and input data to achieve the products)
  - global geophysical fluids related to geometry/EOP

Other IERS Relationships

- Continued connections to IAU, IUGG and FAGS
- Direct contacts with Technique Services and users for input/feedback

Expectations, Functions, Value of GGOS

- Representation of geodesy to decision makers, educators and public
- Interface to GEO, GEOSS, IGOS-P, intergovernmental and international bodies, etc.
- Advocacy for geodetic infrastructure improvement with funding sources under GEO
- Development of new funding model for infrastructure
- Development and promotion of Earth science rationale and new geodetic products
- Coordination of user feedback for product improvement and development
- Unification of geometry/rotation and gravity
- Operational forum among Services

GGOS Structure and IERS

- Organizational – overly structured
  - IERS is a key component in Combination.
  - Interaction of IERS Conventions and Geodetic Standards Bureau to be determined – inclusion of gravity in Conventions?
- Technical – overall GGOS description misleading
  - IERS contributes to data analysis, data flow, combination, integration, conventions and validation.
  - IERS roles are not sufficiently described and identified.
  - Specification of details and numbers of observing stations and co-locations in 10.3.1 for the ITRF is premature.
  - Greater detail and recognition needed for current and presumed continuing activities of the IAG Services.

GGOS Portal

- IERS has developed data and meta data standards for its products.
- Level of GGOS standardization should not conflict with current IERS implementation ISO 19115.
- Portal should concentrate on interface and higher level geodetic products for non-geodesists.
- Individual Service portals, web sites and other modes of communications must be retained for visibility to sponsors and for user convenience. GGOS logo could be added.

IERS plans to have an active, central role in GGOS