

***The IGS GNSS Working Group –
Charter and Plans***

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- **WG established begin of 2003**
- **Overall Objectives**
 - Prepare Feedback to Next Generation Satellite Systems (GNSS/GALILEO,GPS,GLONASS) engineering based on relevant IGS experience



- Reflect opportunities of upcoming Global Navigation Satellite Systems with respect to the work of IGS AC's and other IGS WG's
- Establish information exchange and stimulate co-operations between IGS and entities involved in the administration and technical set up of GALILEO as well as modernization of GPS and GLONASS



To accomplish this goals the WG (1)

- already prepared a list of recommendations to GALILEO System Design
- will prepare two studies which focus on the benefits and problems IGS Analysts have to deal with when processing dual or triple system GNSS data in parallel.
Topics of this studies will be
 - Anticipated Improvements in IGS Products
 - Standardization of Products



To accomplish this goals the WG (2)

- stimulates information exchange within IGS and between IGS and organisations dealing with the set up of Next Generation Satellite Systems at regular meetings or via presentations

A Working Group Web-site has been established which can be accessed via

**[http://www.hg.tuwien.ac.at/forschung/satellitenverfahren/
GNSS WG IGS/GNSS WG IGS.htm](http://www.hg.tuwien.ac.at/forschung/satellitenverfahren/GNSS_WG_IGS/GNSS_WG_IGS.htm)**



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Lehrbuch

GNSS Working Group of the IGS

(Page in progress!)

Terms of Reference IGS recommendations to GALILEO System Design

-
- EMAIL EXCHANGE
 - [email 2](#)
 - [email 1](#)

-
- REPORTS / DOCUMENTS
 - [WD ION](#)
 - [Annual Report 2003](#)

Members

Links:

- [IGS Central Bureau](#)
- [IGS Workshop Berne](#)
- [Sixth Framework Programme](#)

IGS Recommendations to GALILEO System Design (1) (in brief)

Based on a decade of experience acquired by all IGS components the IGS Working Group on GNSS recommends:

- **Reference Frame**

The Galileo Reference Frame should be as close as possible to the most recent realisation of ITRS.

- **Orbit Determination**

Provide proper satellite antenna calibration information.(before launch)

Provide information to determine reliable a priori radiation pressure models for all types of test- and operational GALILEO space vehicles.

Equip GALILEO space vehicles with adequate sized retro-reflectors used for a system independent orbit determination.

IGS Recommendations to GALILEO System Design (2) (in brief)

- **Galileo System Time (GST)**

Keep the GST as close as possible to GPS-Time and monitor differences to TAI/UTC.

- **Galileo Signal Structure**

clarify and release as soon as possible the final GALILEO signal structure to inform receiver manufacturers and data analysts.

- **Galileo System Test Bed**

Involve IGS in the early evaluation of SIS and prototype Receivers in GSTB V2

- **Contact**

ESA entities and Sub-Contractors concerned with GALILEO System design, are asked to keep the contact with all IGS entities, predominately with the IGS GB and the IGS GNSS Working Group.

Interface to IAG Commissions and Services

- **Closely linked to IAG IC Study Group 1.2 on**

Use of GNSS for Reference Frames

(Goal is to evaluate and support the use of Global Navigation Satellite Systems for the definition and densification of the International Terrestrial Reference Frame (ITRF))

Joint IGS / IAG WG

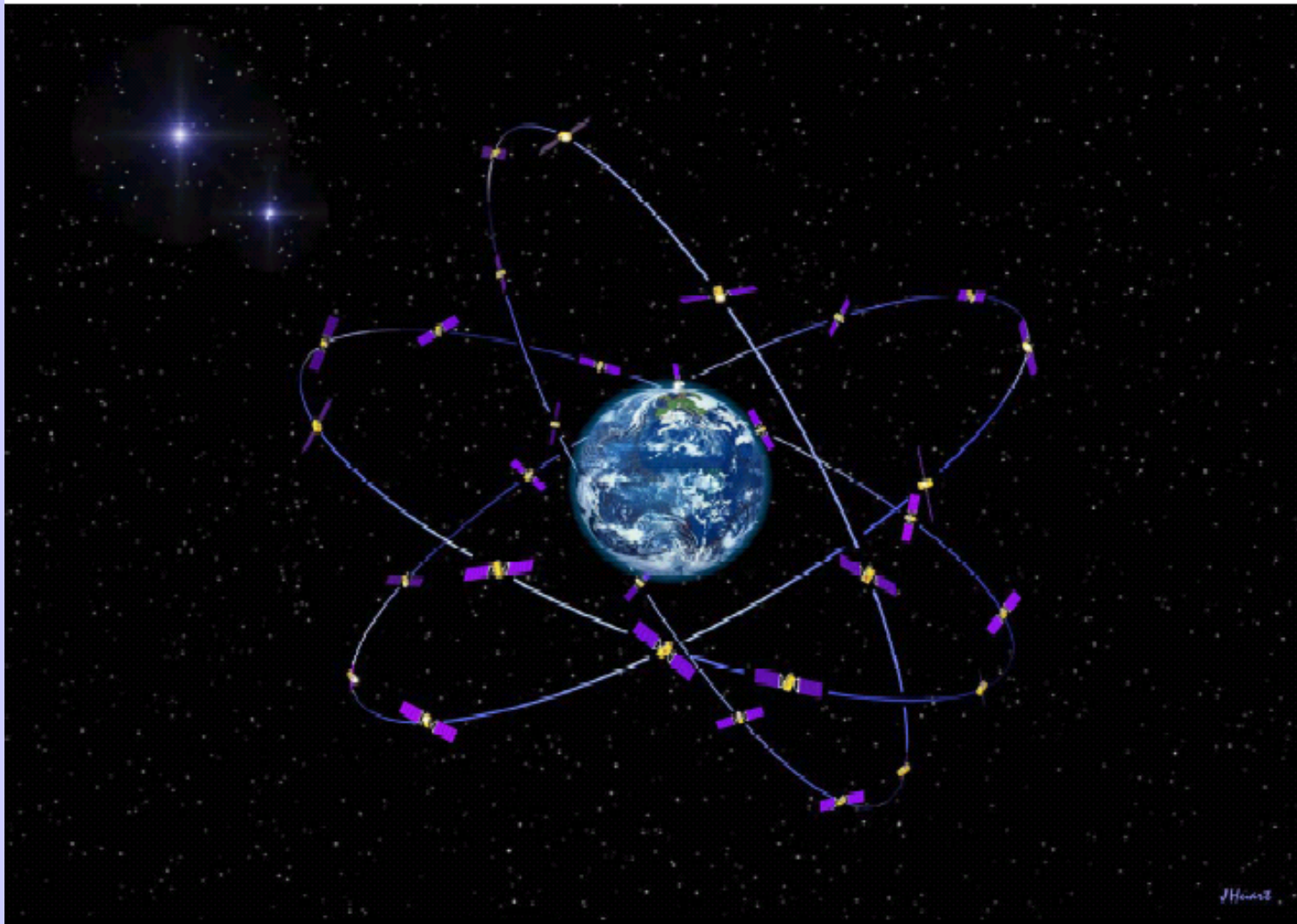
- **Interface to IAG Commission 4**
SC 4.5 on Next Generation RTK (Gao)
Study Group on PPP (Bisnath)

Recommendations

- ➔ Revise all format standards used by IGS entities to transfer tracking data, orbit and clock information, as well as derived products to properly exploit all opportunities offered by Next Generation Satellite System signals.**
- ➔ The IGS asks for a proper calibration of GALILEO and modernized GPS satellite antennas (before launch) and for providing that data to the scientific community.**

- ➔ **In order to collocate the GALILEO Reference Frame (GRF) to ITRF the IGS asks for a proper calibration of GRF Reference Station Antennas and for providing that data to the scientific community.**
- ➔ **The IGS should start as soon as possible the discussion with Receiver manufacturers to explore an optimal set of signals to be tracked by GNSS receivers.**
- ➔ **The IGS GNSS WG should be recognized as an interface for information exchange and for stimulating cooperations between IGS and entities involved in the technical set up of GALILEO as well as modernized GPS and GLONASS.**

Thank you for your attention







Thank you



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GALILEO - Satellitennavigation für Europa

