

IGS : from International GPS Service to International GNSS Service

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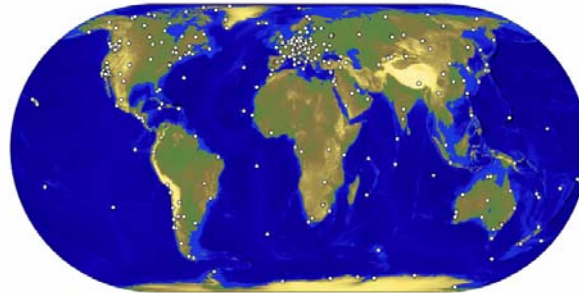
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SUMMARY

- IGS: history and organization
- Current IGS results
- IGS and GLONASS: the IGEX-98 campaign
- IGS and Galileo

IGS in a nutshell

(<http://igscb.jpl.nasa.gov/>)



IGS Jan 6 17:24:54 2004

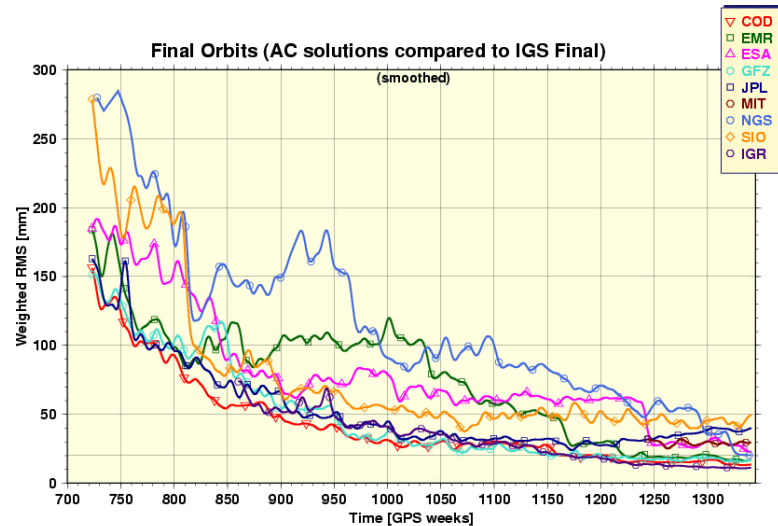
- Federation of 200 organizations (80 countries)
- GPS (and GLONASS) network of 350 stations
- 4 Global Data Centers (including IGS)
- 6 Regional Data Centers
- 8 Analysis Centers

History of the IGS

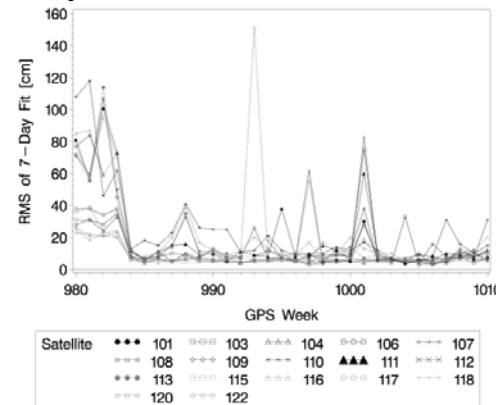
- 1989: Discussions at IAG Scientific Assembly - Edinburgh, UK
- 1991: Call for participation
- 1992: Pilot project
- 1994: IAG Service

IGS: Current results

- Precise orbits (in ITRF)
 - GPS < 5 cm in radial
 - GLONASS < 15 cm in radial
- Station position < 5 mm
- Satellite clocks < 0.1 ns
- Ionosphere: 2-8 TECU
- Troposphere: 4 mm (ZTD)



Courtesy of G. Gendt, GFZ, Potsdam



IGS and GLONASS: the IGEX-98 campaign

INTERNATIONAL GLONASS EXPERIMENT (IGEX-98) NETWORK



30 GLONASS receivers

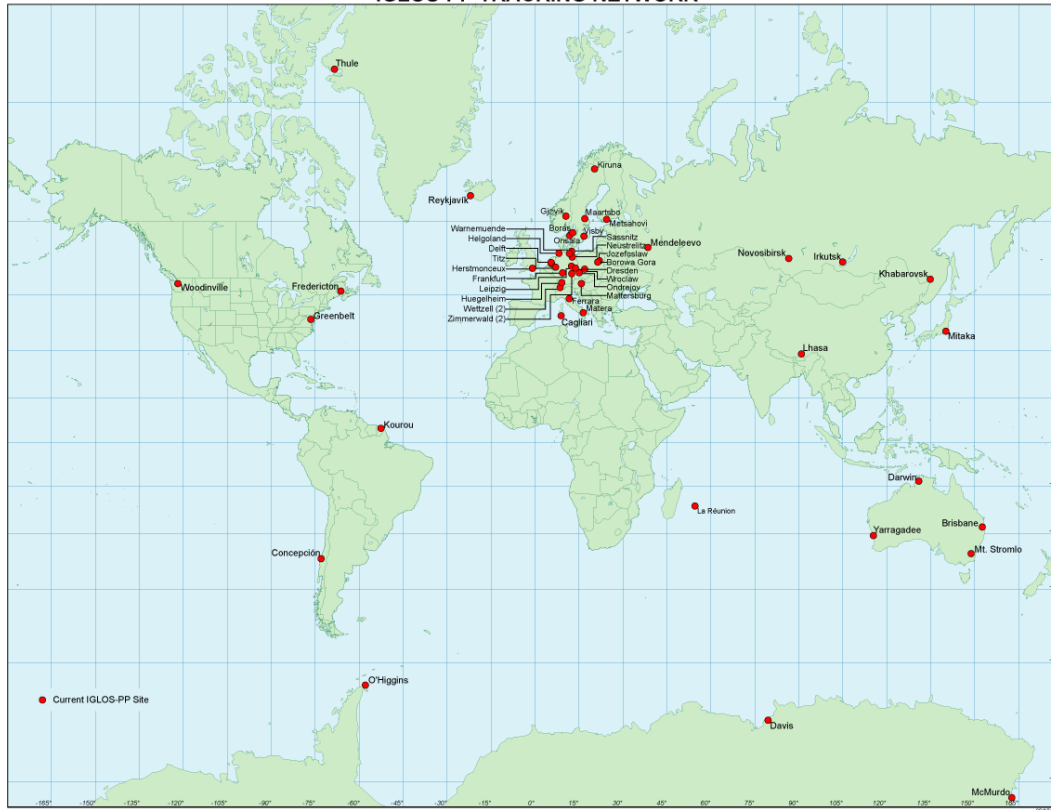
+ Laser tracking (ILRS)

6 Analysis Centers
GLONASS/GPS

24 countries

IGS and GLONASS (Oct 2005)

IGLOS-PP TRACKING NETWORK



- 11 GLONASS satellites
- 46 tracking stations
- Laser tracking (CONT05)
- Identical data flows
- GLONASS/GPS combined analysis at IGS

IGS and Galileo

- 2002-2007 IGS Strategic Plan
 - Galileo
 - Real-time data and products

- Working group on GNSS
 - Chair: Robert Weber (TU Wien, Austria)

CONCLUSIONS

- IGS = best GPS orbit quality (<5 cm in ITRF)
- IGS has a long term plan on Galileo
(GPS--> GNSS)
- IGS already demonstrated with GLONASS what it will do for Galileo
(campaign--> pilot experiment---> scientific service)
- What is needed is the Galileo satellites and geodetic receivers

Documents

- International GPS Strategic Plan 2002-2007 (2002), IGS Central Bureau, Pasadena, USA, JPL 400-1000 03/02
- Celebrating a decade of the International GPS Service, Proc. Workshop and Symposium 2004, AIUB, Bern, Switzerland, 255 p.
- Beutler et al. (1999) International GPS Service (IGS), an interdisciplinary service in support of Earth sciences, Adv. Space Res., 23(4), 631-653.
- Dow (2003) The International GPS Service for leading-edge space missions, ESA Bull. 116, 64-69.
- Gurtner (2001) Organizational aspects of the International GLONASS Service, Physics Chem. Earth, 26(6-8), 569-572.
- Slater and Willis (2001) The international GLONASS Service pilot project, GPS Solution, 4(4), 61-67.
- Weber and Springer (2001) The International GLONASS Experiment, products, progress and prospects, J. Geodesy, 75(11), 559-568.
- Willis et al. (1999) IGEX, International GLONASS Experiment, scientific objectives and preparation, Adv. Space Res., 23(4), 659-663.
- Willis and Dow (2001) Potential interest of the IGS for the Galileo system. GPS Solutions, 4(4), 68-71.

Web sites

- IGS: <http://igscb.jpl.nasa.gov/>
- IGLOS (GLONASS):
<http://igscb.jpl.nasa.gov/projects/iglos/index.html>
- IGEX-98
<http://lareg.ensg.ign.fr/IGEX/>