



Some Welcome Remarks...

IGS Workshop

Newcastle, U.K., 28 June - 2 July

Chris Rizos

Vice President, IAG



International
Association of
Geodesy

A Constituent Association of the IUGG



... advancing geodesy ...



IAG Services

Geometry

- IERS: International Earth Rotation and Reference Systems Service
- IGS: International GNSS Service (1994)
- IVS: International VLBI Service (1999)
- ILRS: International Laser Ranging Service (1998)
- IDS: International DORIS Service (2003)

Gravimetry

- IGFS: International Gravity Field Service (2008)
- BGI: Bureau Gravimetrique International
- IGeS: International Geoid Service
- ICET: International Centre for Earth Tides
- ICGEM: International Centre for Global Earth Models
- IDEMS: International Digital Elevation Models Service

Ocean

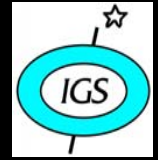
- PSMSL: Permanent Service for Mean Sea Level (1933)
- IAS: International Altimetry Service (*in planning*)
- BIPM: Bureau International des Poids et Mesures (Time 1875)

Std

- IBS: IAG Bibliographic Service



The IGS: IAG's First Operational Service



By the late 1980's, the potential of GPS for geodesy & geodynamics was realised by many organisations, with following IGS milestones:

- Announcement of Opportunity 1991: *International GPS Service for Geodynamics* (until 1999, then simply *International GPS Service*)
- Start of 3 month Test Campaign 21 June 1992
- IGS became an official service of the IAG in January 1994
- Became the **International GNSS Service** in March 2005

Key to IGS's success: **sharing investments & operational costs by pooling the resources of many organisations (with national & international interests) to establish an independent ground CORS network, and a distributed processing capability to generate high quality products ...**

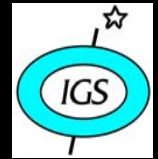
The IGS does not own any facilities ... ***operates on "best efforts" basis, reliability through redundancy, with all products freely available to all users.***



What the IGS pioneered... (& why the IAG is so proud of it)



- **Products**... *highly professional, operational service with performance far better than any other GPS service provider... trailblazer for other IAG services.*
- **Democratisation**... *of geodetic technologies & knowhow... involving organisations & agencies from many countries.*
- **Dense global coverage**... *engaging with station operators around the world, promoting IAG ideals.*
- **Adaptability**... *ability to extend & maintain tracking network... experiment & develop new products... with inbuilt “self-improvement” mechanism.*
- **Engagement**... *scientific & professional organisations... respected “brand” with unrivalled GNSS expertise... encouraging open & inclusive “culture” across the geodetic community.*



GNSS/IGS is fundamental to modern geodesy's role as a high-accuracy earth monitoring system & as a vital geoscience... The IGS is therefore the core component of the IAG's Global Geodetic Observing System.



The International Association of Geodesy's Global Geodetic Observing System (GGOS)

GGOS's goal is to use advanced geodetic observing methods to support a range of Earth science applications...

with planned factor of 10x accuracy increase over the coming decade... 1mm accuracy reference frame & stability of 0.1mm/yr.

*that can detect the
"fingerprints" of
Global Change...*



<http://www.ggos.org>



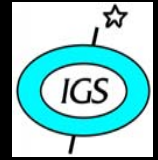
But the IGS infrastructure & its products do *much more...*

IGS underpins society's requirements for a high quality, accessible geospatial framework, & a high accuracy GNSS-PNT capability...

This versatility gives the IGS a “special role”, even beyond its IAG responsibilities, but nevertheless poses significant challenges.



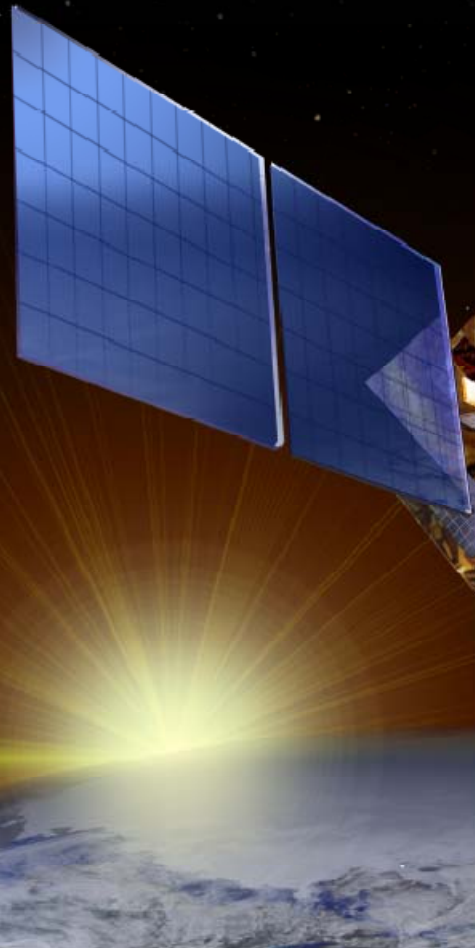
IGS's Key Strategies



INTERNATIONAL
GNSS SERVICE

Strategic
Plan

2008 - 2012



- Deliver **world-standard quality** GNSS data and products to all users globally with **leading-edge expertise and resources**.
- Develop, integrate, and participate with **new and changing GNSS systems**, and **understand user needs** to **continuously improve** the IGS to provide value to a **broad range of users**.
- Continuously **improve** the effectiveness of the IGS **governance and management** to support **growth of the service**.

<http://igscb.jpl.nasa.gov/overview/pubs.html>

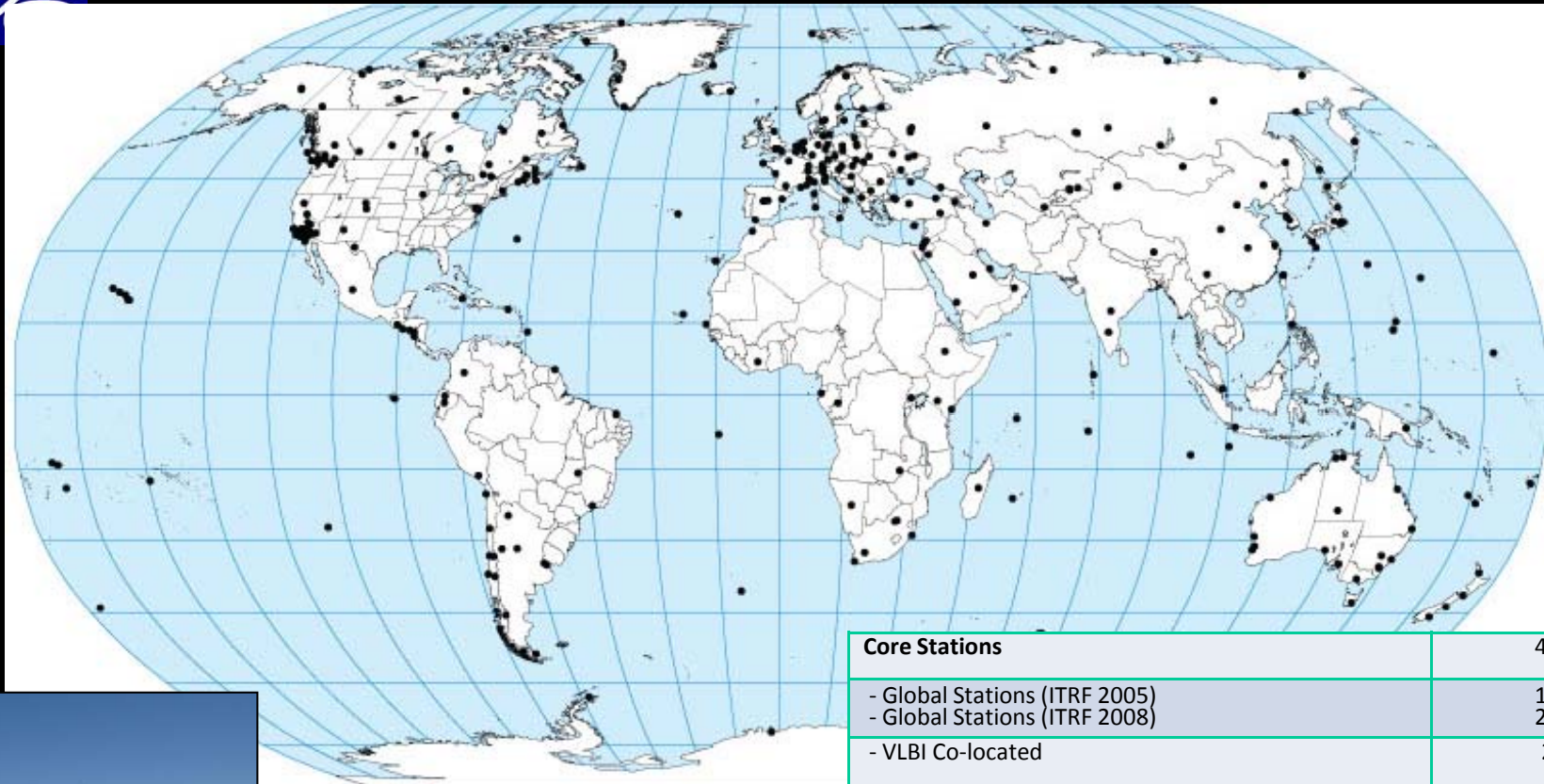
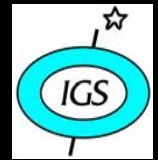


A challenge for the IGS as an organisation is to address the need to both “broaden” and “deepen” its network, its partners, its products & its capabilities...

without sacrificing those qualities that make the IGS unique, respected and successful.



IGS Tracking Network Challenges



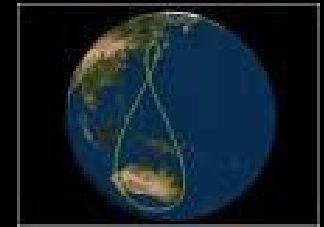
Core Stations	415
- Global Stations (ITRF 2005)	132
- Global Stations (ITRF 2008)	241
- VLBI Co-located	25
- SLR Co-located	37
- DORIS Co-located	55
Project Stations or Experimental Capabilities	
- Timing stations	80
- Reprocessing campaign	667
- Tide Gauge Co-located	103
- GPS+GLONASS	93
- Real-time	120



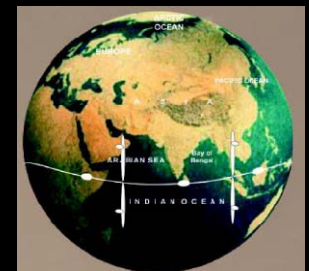
(1) From GPS to Next Generation GNSS...



COMPASS



QZSS



IRNSS

2013-18: 4x number of satellites,
6x number of signals!

Profound impact on both users and the IGS...

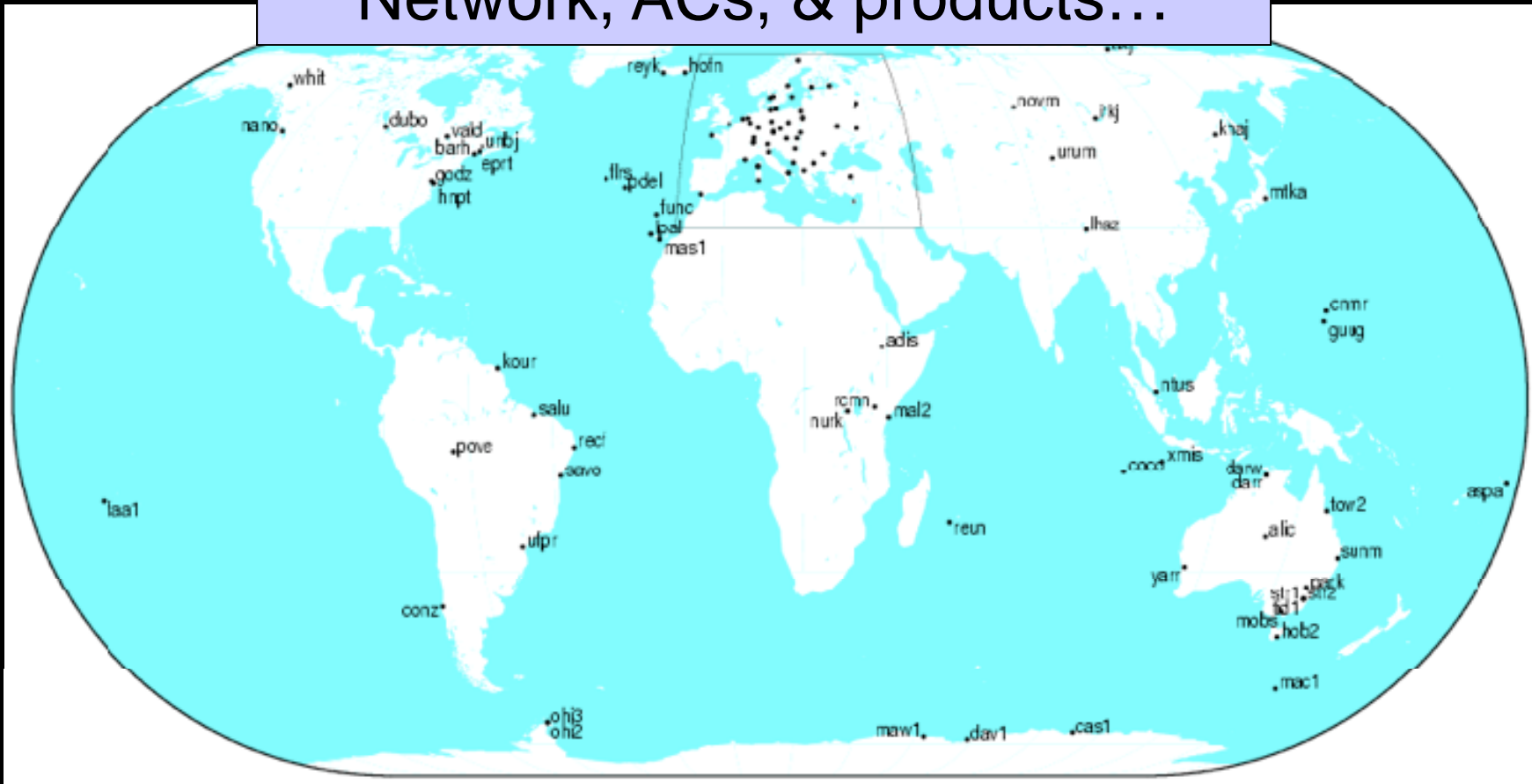
*requiring upgrade of user equipment & reference networks;
communications, formats & standards; field techniques;
modelling, algorithms & software; products & services...*



IGS GPS+GLONASS Activities



Network, ACs, & products...



However, IGS network will need to upgrade to *track “next generation” GNSS*, & ACs to *generate new products...*



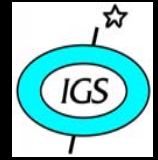
IGS & regional networks... (which the IAG supports)



- **AFREF**... *Africa*
- **APREF**... *Asia-Pacific*
- **EUREF**... *Europe*
- **SIRGAS**... *South America*
- ...



IGS & regional networks... (which the IAG supports)



- Network densification
- Project-specific support
- Application of IGS products
- Access to ITRF
- Inculcate IGS “culture” of open data policies
- “Nursery” for new IGS elements
- Cooperate with IAG Comm1
- Tangible IGS link to operational geodesy & precise positioning apps
- Outreach & technology transfer
- Encourage adoption of IGS standards, e.g. RINEX
- Align with national geodetic initiatives
- Engagement with sister associations, e.g. FIG
- Engagement with less developed countries
- Doesn't impact on production of core products

WHY?



IGS & multi-GNSS... (which the IAG also supports)



- **IGS GNSS WG**
- **IGS/IAG membership of the ICG**
- **QZSS demonstration experiment...**
Asia-Pacific 20-30 QZSS tracking stn network +ACs, etc.
- **CONGO...** *Global 10 GIOVE-A/B tracking stn network +ACs & products.*
- ...



IGS & multi-GNSS... *(which the IAG also supports)*



- New GNSS experimentation
- Inculcate IGS “culture” of open data policies, etc.
- “Nursery” for new IGS elements
- Doesn’t impact on production of core products
- Ensures IGS is recognised as “GNSS experts”
- Collaborate with other IAG Components
- Extend IGS expertise
- Encourage adoption of IGS standards, e.g. RINEX
- Engagement with ICG
- Encourage IGS “best practice”
- Encourage adoption of ITRF
- Assessment of “value” of new GNSS for GGOS & other IGS products

WHY?

As far as the IAG is concerned,
the IGS is encouraged to:

- *maintain & improve its current capabilities & products*
- *be creative & remain open to experimentation*
- *engage with the other IAG Components*
- *play its critical role within GGOS*
- *support global & regional initiatives in order to encourage development of new GNSS capability for geodesy (& beyond)*
- *continue its positive role as the most “visible” (& broadly relevant) of the IAG Services*



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www.iugg2011.com

XXV IUGG General Assembly

EARTH ON THE EDGE: SCIENCE FOR A SUSTAINABLE PLANET

SAVE THE DATE 27 June – 8 July 2011

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