
Multi-GNSS Networks and Monitoring: the IGS M-GEX

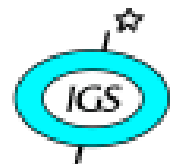
Chris Rizos

International Association of Geodesy (IAG)
International GNSS Service (IGS)

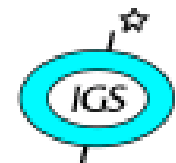
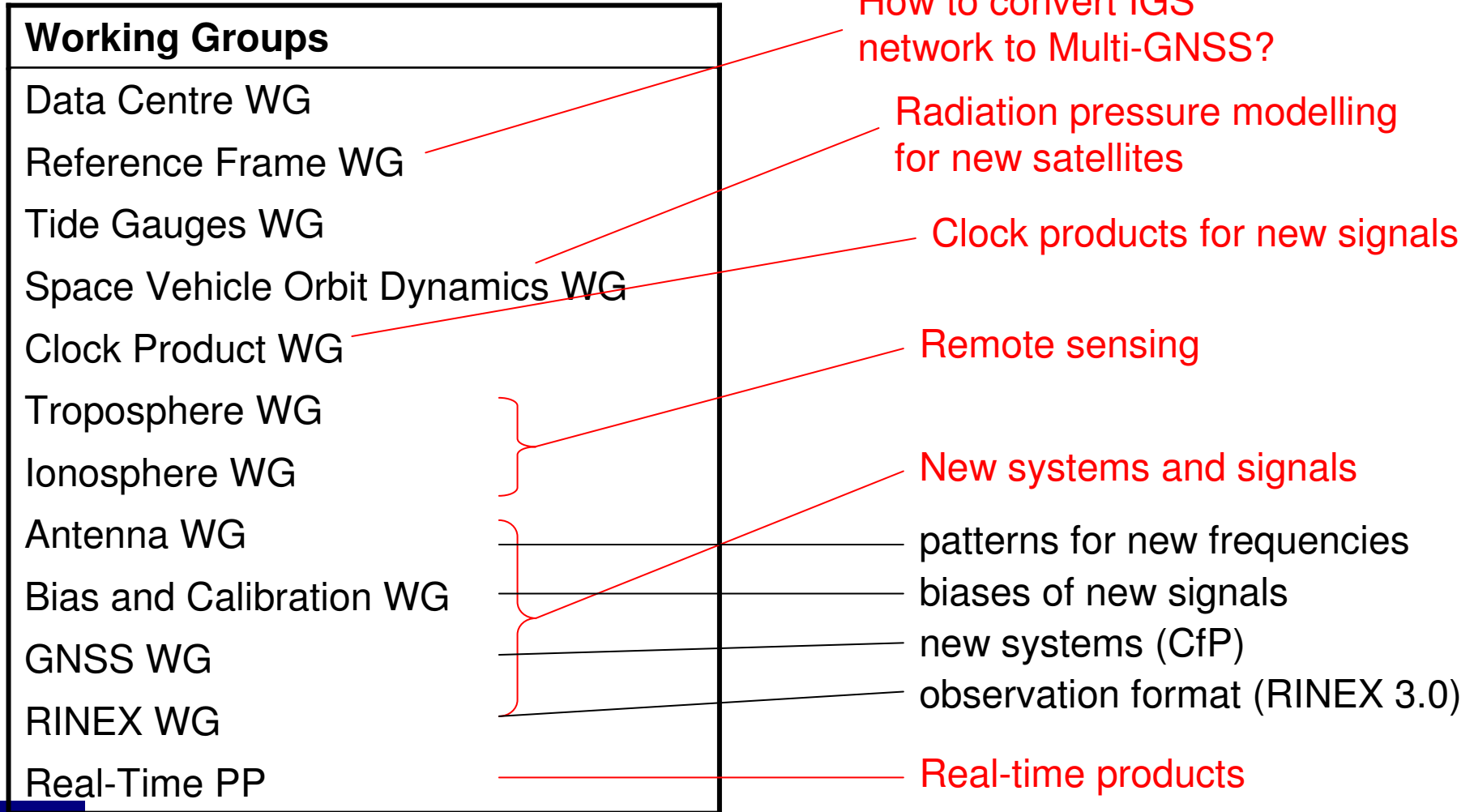
ICG-6 Meeting, Tokyo, Japan, 4-9 September 2011



Acknowledge some material provided by Urs Hugentobler, Chair IGS 2011

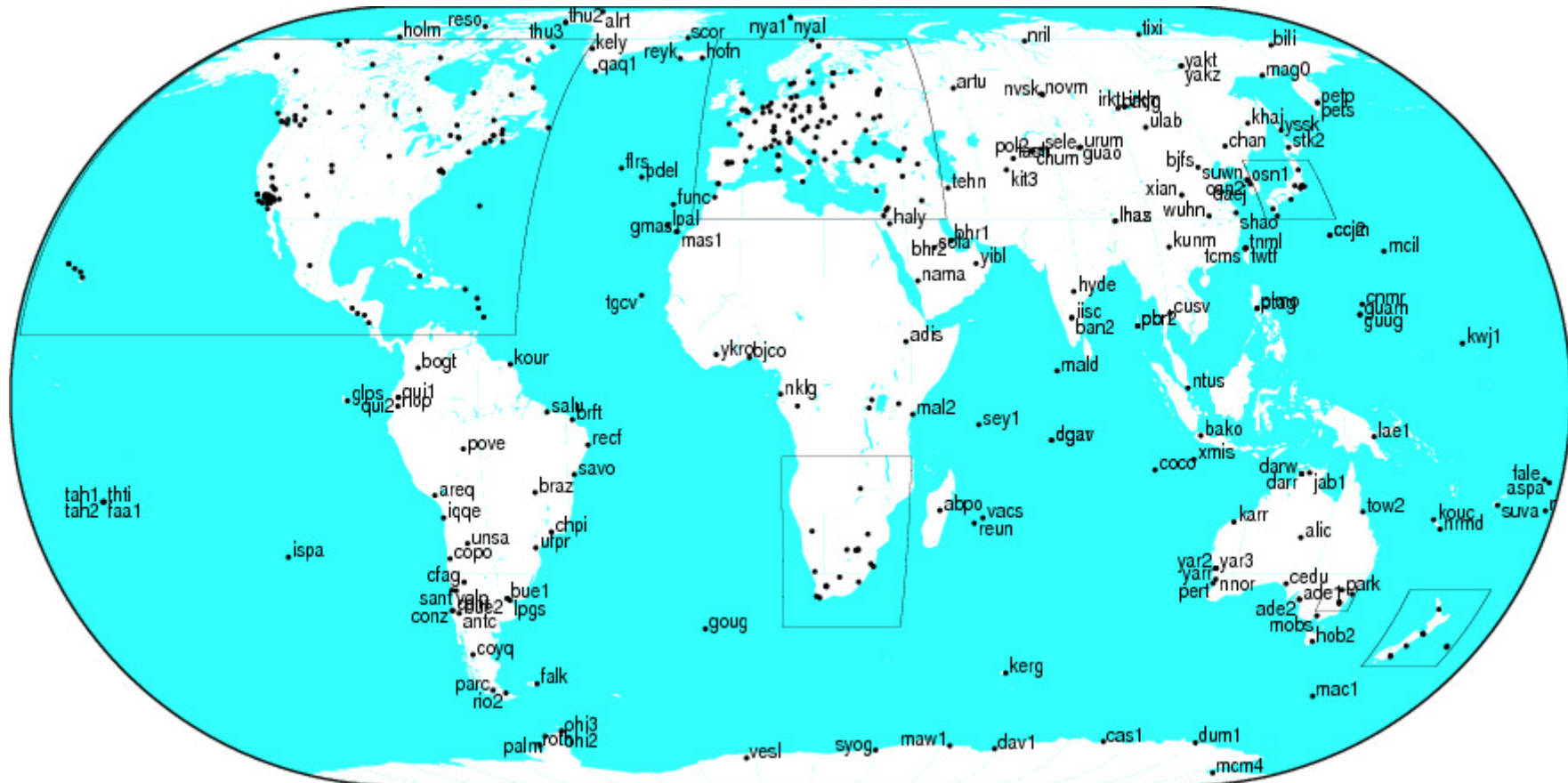


M-GNSS: IGS Working Groups and Pilot Projects



IGS Tracking Network

- Over 380 active global tracking stations

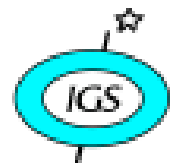


<http://igs.org>



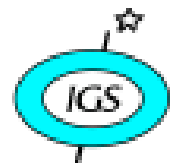
IGS CfP for Multi-GNSS Global Experiment

- Motivation:
 - New and modernised systems and signals upcoming (or available)
 - Receivers that have Multi-GNSS capabilities are available
 - IGS must prepare for incorporation of new GNSS measurements
- Goal:
 - Experiment to operate a global network of new receivers capable of tracking new signals in addition to GPS & GLONASS
 - Support JAXA's Multi-GNSS Monitor Network activities
- Tasks:
 - Set-up tracking network of Multi-GNSS receivers
 - Make tracking data files publicly available
 - Experiment with data flow, qualify equipment, signals, analysis...
 - *Upgrade IGS network to Multi-GNSS*
 - *Generate Multi-GNSS products*



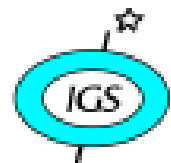
CfP for M-GEX

- Call-for-Participation issued... <http://igs.org/>
- Call for new stations:
 - Expansion of *continuous tracking network* according to IGS standards
 - Include other stations that may be more temporary or do not meet IGS standards that can enable *engineering* analysis of Multi-GNSS
 - Track as many signals as possible, focus on GNSS, but can include SBAS
 - The experiment is in parallel with ongoing IGS operations
 - Use COTS M-GNSS receivers... but SW receivers encouraged
 - RINEX 3.01 data format
 - Make tracking data publicly available through Data Centres
 - Real-time data streaming option to support RT-PP activities, and eventually production of RT products



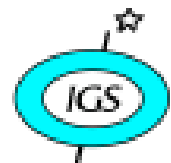
CfP for M-GEX

- Call for Data Centres:
 - Archive tracking data and make it publicly available
 - No interference to daily IGS operations
- Call for Collaboration with other federated networks to realise global M-GNSS network:
 - E.g. JAXA's MGM-Network, CONGO, ...
- Following steps:
 - Fill in gaps in site distribution and signal coverage
 - Not to disrupt the daily IGS operations
 - Include Real-Time tracking aspect and signal utilisation
 - Analysis of the new M-GNSS measurements to be conducted by IGS ACs on a 'best efforts' basis
 - Analysis and engineering analysis by other interested groups strongly encouraged



CfP for M-GEX

- Time schedule:
 - Early Aug 2011 - Call for Participation released
 - Oct 30, 2011 - Proposals due
 - Dec 15, 2011 – Proposals evaluated by the Organising Committee
 - Feb 1, 2012 – Experiment begins
 - Jul 23-27 – First results evaluation and discussion at IGS 2012 Workshop, Olsztyn, Poland
- Note: Interested organisations can join at any time.



Concluding Remarks

- More than 100 GNSS satellites will be available in the near future.
- Not only more satellites, but also more and better signals, better clocks, etc.
- IGS is preparing for incorporation of new systems and signals into routine operations.
- CfP for [IGS Multi-GNSS Global Experiment](#) (IGS M-GEX) has been issued.
- Seeking groups that will track, archive, or analyse new signals.
- First results at [IGS Workshop in Olsztyn, Poland, 23–27 July 2012](#).
- M-GEX can also provide raw data and/or products to support other (national or international) Multi-GNSS initiatives... *let's minimise duplication of global M-GNSS ground networks and ACs.*

