

# **REPORT ON THE EIGHT MEETING OF THE INTERNATIONAL COMMITTEE ON GLOBAL NAVIGATION SATELLITE SYSTEMS (ICG-8)**

Dubai, UAE, November 2013

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## **INTRODUCTION**

The Eight Meeting of the International Committee on Global Navigation Satellite Systems (ICG) was held in Dubai, UAE from 9 to 14 November 2013. The ICG has been formed as a result of recommendations of the UN Committee on the Peaceful Use of Outer Space (COPUOS), as ratified by the General Assembly of the UN. The International Federation of Surveyors (FIG) is an Associate Member of the ICG. I was there as the FIG representative to UNOOSA. Unfortunately, Matt Higgins could not be present but he is FIG's co-chair for Working Group D on Reference Frames, Timing and Applications. More than 170 people attended the meeting with representatives from all of the GNSS/RNSS providers. There were also many representatives from other countries and non-government organisations. It is interesting to see how many delegates that are coming from Russia and China to these meetings.

## **JOINT STATEMENT FROM ICG-8**

At the end of each meeting, the ICG issues a Joint Statement outlining the highlights of the broad scope of work across the ICG. Various presentations were made at the plenary sessions and working group sessions of the meeting and they form a very useful snap shot of the state of the art with the various GNSS and also with issues across key user groups. The Joint Statement from ICG-8, Working Group Reports and all presentations will be available in due course on the ICG Information portal.

(see [www.oosa.unvienna.org/oosa/en/SAP/gnss/icg/meetings.html](http://www.oosa.unvienna.org/oosa/en/SAP/gnss/icg/meetings.html)).

## **REPORTS ON THE STATUS OF ALL OF THE MAJOR GNSS SUB-SYSTEMS**

The system providers are at the core of the overall work of the ICG and a feature of the first Plenary Session of the ICG is a series of presentations on the status of all of the major GNSS

sub-systems. Presentations also outline the views of each of the system provider nations on the issues of Compatibility and Interoperability. System developments to note at ICG-8 include:

- US started by presenting the status of GPS
    - The US policy is to provide continuous worldwide access for peaceful uses, free of direct users charge as well as encourage compatibility and interoperability with other GNSS services and promote transparency in civil service provisioning.
    - The forth GPS IIF was launched in May with eight more in the pipeline. This means that currently 31 healthy satellites are operational. Global GPS civil service performance commitment has been met continuously since December 1993.
    - Web site: <http://www.gps.gov/>
  
  - The Russian Federation presented the status of GLONASS
    - The civil services are free to use and available globally.
    - The Glonass programme concept was adopted 3<sup>rd</sup> of March, 2012. It covers 2012-2020 including a budget.
    - 28 satellites have been launched and 24 satellites are currently operational with one launch in April 2013.
    - Web site: [www.glonass-center.ru](http://www.glonass-center.ru)
  
  - European Community presented progress with EGNOS (its SBAS) and Galileo:
    - Galileo still have four satellites in orbit.
    - IOV is expected to be confirmed in 2013 after which the constellation will be expanded to IOC during 2014/5 and FOC with 30 satellites expected in 2020.
    - The first fix was reported the 12<sup>th</sup> of March, 2013
    - The services to be provided by Galileo include the Open Service, Public Regulated Service, Search and Rescue Service, Commercial Service. Early service for the first three will be provided from 2014.
    - A new Service provision contract was signed with ESSP
    - The EGNOS data access service was declared operational in July 2012
    - Web site: [ec.europa.eu/galileo](http://ec.europa.eu/galileo)
  
  - China presented the status of Beidou:
    - The new version 2.1 of the Development of BeiDou Navigation Satellite System has been released.
    - Phase 2 of BeiDou was finalized and Phase 3 will begin to progress from regional to full global coverage during the second half of the decade. Test satellites will be launched during 2014
    - Further statements that Beidou provide continuous, stable and worldwide services and that Beidou belongs to China as well to the world!
    - Web site: <http://en.beidou.gov.cn/>
  
  - India presented the status on GAGAN and IRNSS
    - GAGAN stands for GPS Aided GEO Augmentation Navigation System.
    - GAGAN is compatible and interoperable with other SBAS. Main focus concerns civil aviation to ensure better air space management and fuel efficiency.
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- GAGAN includes 3 GEO satellites, 3 uplink stations and 2 control centres. Two of the satellites have been sent up and GSAT-15 to be launched in 2-3 years from now.
- IRNSS is an independent regional navigation system that will include 7 satellites of which three are GEO and four are GEO synchronous orbits. First satellite was launched 1<sup>st</sup> of July, 2013. Full constellation is expected by the end of 2015.
- Japan presented their progress regarding the Quasi Zenith Satellite System (QZSS). Basically very much the same as last year.
  - The first QZSS satellite Michibiki will be followed by three more and the service will start latest 2018.
  - The Government of Japan has decided to accelerate the deployment of the operational QZSS as expeditiously as possible.
  - In the future a seven satellite constellation shall be completed to enable sustainable positioning.

#### **OTHER ISSUES TO NOTE FROM THE MEETING**

There were many other interesting presentations, discussions and decisions at the meeting and the following is an outline of some that the author found particularly interesting:

- FIG presentation on FIG Technical Seminar on Reference Frame
- ITRF2013, this new ITRF realisation to be released during 2014
- Impact of a possible redefinition of coordinated universal time in GNSS interoperability
- User perspective and applications describe through several presentations

#### **MEETINGS OF WORKING GROUP D AND ITS TASK FORCES ON GEODETIC AND TIMING REFERENCES**

The working group had three meetings during the week. The minutes from Working Group D and other Working Groups will be available from the ICG web portal in due course as well as other official documents as e.g. recommendations. The main outcomes from the Working Group D were:

- The first key outcome from the meeting was the related discussion regarding the possible redefinition of UTC and the impact this would have on GNSS time
- The second key is the success that the IGS project MGEX has had as well as the focus on the IGMA project within ICG.
- The third key outcome from the meeting was a series of recommendations which were later accepted by the ICG and its Provider's Forum on the following topics:
  - WG-D Recommendation #16 – Information on the works related to the proposed redefinition of UTC (revision)
  - WG-D Recommendation #18 – Assessment of the alignments of GNSS associated reference frames to the ITRF

- WG-D Recommendation #19 – Official provision of a rapid UTC (UTC<sub>r</sub>) of the BIPM
- WG-D Recommendation #20 - BIPM publication of [UTC – GNSS times] and [UTC – UTC (k)<sub>GNSS</sub>]
- WG-D Recommendation #21 – On the monitoring of the offsets between GNSS times

#### **NEXT MEETINGS OF THE ICG**

The European Space Agency and EU will host ICG-9 in Prague on the 10-14 November, 2014. US expressed interest in hosting ICG-10 in 2015.