

International Committee on Global Navigation Satellite Systems (ICG)

Sharafat Gadimova
ICG Executive Secretariat
Office for Outer Space Affairs
United Nations Office at Vienna

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applications of Global Navigation Satellite Systems***

16 – 20 January 2011

Dubai, United Arab Emirates

Outline

- ◆ **United Nations Office for Outer Space Affairs (UNOOSA)**
- ◆ **UNISPACE III: Action Team on Global Navigation Satellite Systems**
- ◆ **International Committee on Global Navigation Satellite Systems (ICG)**
- ◆ **Programme on GNSS Applications: Information Dissemination and Capacity Building**
- ◆ **ICG Executive Secretariat**

United Nations Office for Outer Space Affairs (UNOOSA)

- ◆ **Mandated by the Fourth Committee of the UN General Assembly (UN GA) and the Committee on the Peaceful Uses of Outer Space (UN COPUOS), and its subsidiary bodies:**
 - ◆ **Scientific and Technical Subcommittee**
 - ◆ **Legal Subcommittee**

- ◆ **UN COPUOS reports annually to the Fourth Committee of the UN GA, which annually adopts a **GA resolution on****
“International cooperation in the peaceful uses of outer space”

UNISPACE III

- ◆ **Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), July, 1999:**
 - ◆ **“The Space Millennium: Vienna Declaration on Space and Human Development” (Vienna Declaration)**
- ◆ **Global Navigation Satellite Systems (GNSS) related recommendation:**

“...to improve the efficiency and security of transport, search and rescue, geodesy and other activities by promoting the enhancement of, universal access to and compatibility of space-based navigation and positioning systems”

UNISPACE III: Action Team on GNSS

- ◆ **2001: 12 Action Teams established by UN COPUOS under voluntary leadership by Member States**
 - ◆ *Recommendations that have been assigned highest priority by Member States of the United Nations*
- ◆ **GNSS Action Team** co-chaired by the United States and Italy
 - ◆ **Membership: 38 nations & 15 organizations**

Regional Workshops: 2001 – 2002

- ◆ **2001: Malaysia, ESCAP and Austria, ECE**
- ◆ **2002: Chile, ECLAC and Zambia, ECA**
- ◆ **2003 – 2004: International Meetings, Vienna**
 - ◆ **2004: Action Team concluded its work**

Main Recommendation: *Establishment of an International Committee on GNSS (ICG)*

International Committee on Global Navigation Satellite Systems (ICG)

***A forum to discuss Global Navigation Satellite Systems (GNSS)
to benefit people around the world***

- ◆ **2005: Establishment of ICG**
 - ◆ **ICG Membership: Members, Associate Members and Observers**
 - ◆ **9 nations & the European Union**
 - ◆ **15 organizations (UN system entities, IGOs, NGOs)**

***ICG participation is open to all countries and entities that are either
GNSS providers or users of GNSS services, and are interested and willing
to actively engage in ICG activities***

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ICG Work Plan:

- ◆ ***Compatibility and Interoperability (USA and Russia)***
 - ◆ ***to identify and encourage use of existing guidelines and standards to enhance compatibility and interoperability;***
 - ◆ ***open service information sharing;***
 - ◆ ***service performance monitoring;***
 - ◆ ***spectrum protection: interference detection and mitigation.***
- ◆ ***Enhancement of performance of GNSS services (India and ESA)***
 - ◆ ***to promote and coordinate activities aimed at enhancing GNSS performance, recommending system enhancements and meeting future user needs.***
- ◆ ***Information dissemination and capacity building (UNOOSA)***
 - ◆ ***training/technical workshops for capacity building in developing countries***
- ◆ ***Reference Frame, Timing and Applications (IAG, IGS, FIG)***
 - ◆ ***to consider geodetic and time references***

International Committee on Global Navigation Satellite Systems (ICG)

2006: First Meeting of the ICG, UNOV, Vienna, Austria

- ◆ **Work Plan and Terms of Reference**

2007: Second Meeting of the ICG, ISRO, Bangalore, India

- ◆ **Within the ICG is the **Providers' Forum**, consisting of those countries operating GNSS systems or with plans to develop one (USA, Russian Federation, European Union, China, India and Japan): **a venue for coordination and cooperation to improve overall service provision****

2008: Third Meeting of the ICG, JPL, Pasadena, USA

- ◆ **Work Plan and Terms of Reference of the **Providers' Forum****
- ◆ **UN-affiliated **Regional Centres for Space Science and Technology Education (India, Morocco, Nigeria, Mexico/Brazil)** will act as the **ICG Information Centres****

2009: Fourth Meeting of the ICG, Roscosmos, Saint-Petersburg, Russia

- ◆ **Monitoring of the ionosphere during the next solar maximum and its effects on GNSS receivers;**
- ◆ **Adopted new principle on transparency: Every provider should publish documentation that describes signal and system information, policies of provision and minimum levels of performance for its open services;**
- ◆ **Endorsed a proposal for a multi-GNSS demonstration project in the Asia/Oceania region**

International Committee on Global Navigation Satellite Systems (ICG)

2010: Fifth Meeting of the ICG, Italy and the European Union, Turin, Italy

- ◆ Reviewed and discussed developments in GNSS, as well as the promotion of the use of GNSS and their integration into national infrastructure, particularly in developing countries;
- ◆ Addressed **aspects of spectrum protection, and interference detection and mitigation;**
- ◆ Considered the **issue of integrity for all users where a particular effort is needed to make them aware of the benefits arising from the coming multi-GNSS scenarios;**
- ◆ Considered a **programme on GNSS applications, including deploying instruments for the international space weather initiative (ISWI), as well as the applications of GNSS in various areas to support sustainable development;**
- ◆ Focused on **standard descriptions of geodetic and timing references for existing and planned systems;**
- ◆ Reiterated its support for **multi-GNSS campaigns.**

2011: Sixth Meeting of the ICG, Tokyo, Japan, 5 – 9 September

***Programme on GNSS Applications:
Information Dissemination and Capacity Building***

- I. International Space Weather Initiative: *Develop the scientific insight necessary to understand the science, and to forecast near-Earth space weather***
- ◆ **Instrumentation and data analysis**
 - ◆ **Expand and continue deployment of new and existing instrument arrays**
 - ◆ **Expand data analysis effort for instrument arrays and existing data bases**
 - ◆ **AWESOME (Atmospheric Weather Educational System for Observation and Modeling of Effects)/SIDs (Sudden Ionospheric Disturbance) monitors, USA**

2010: Egypt (Western Asia), Helwan University, 6 – 10 November

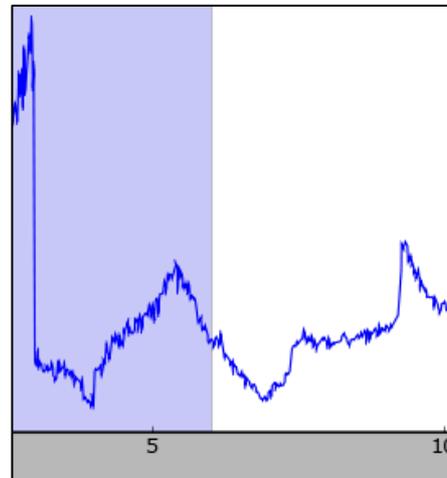
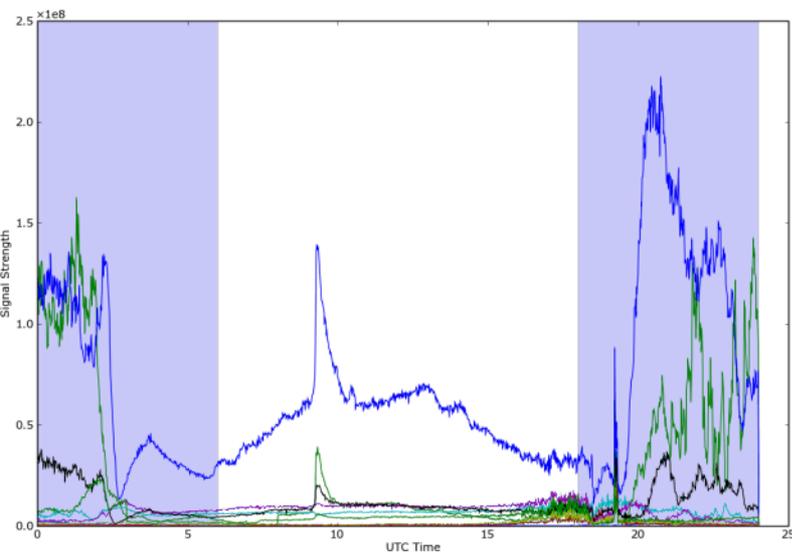
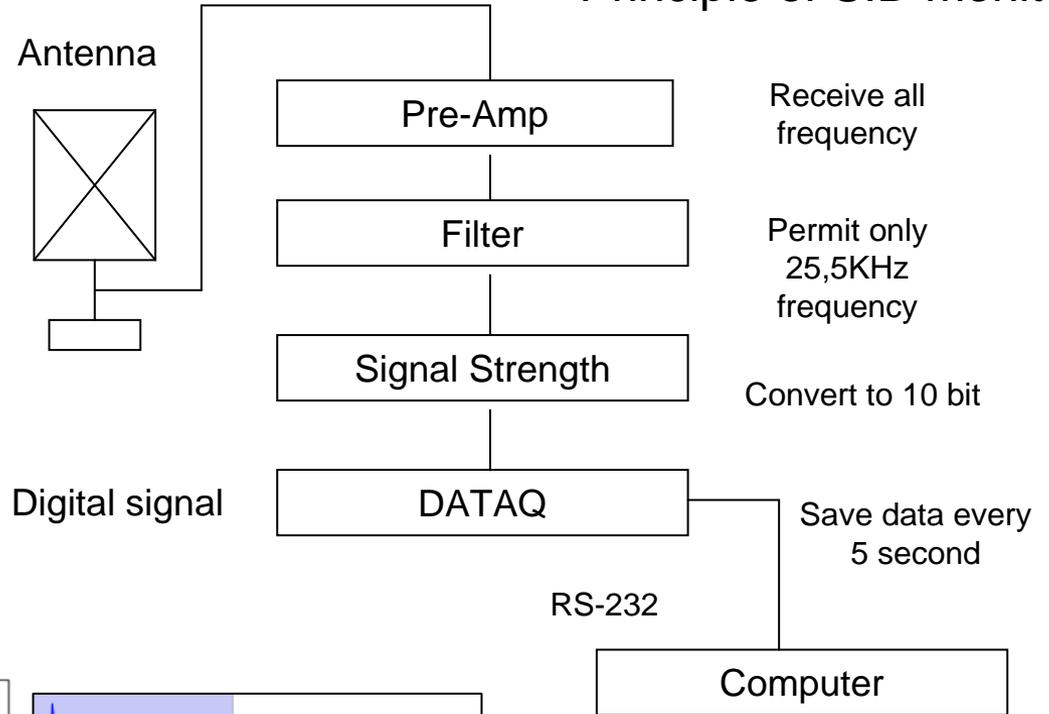
2011: Nigeria (Africa), Abuja, 17 – 21 October

2012: Ecuador (Latin America and the Caribbean)

Sudden Ionospheric Disturbance Monitor (SID) operated by UNOOSA



Principle of SID monitor



Stanford Solar Centre
SID Data Access

www.stanford.edu

***Programme on GNSS Applications:
Information Dissemination and Capacity Building***

II. Regional Workshops on the Applications of GNSS: *increase awareness among decision and policy makers of the benefits of GNSS and develop regional and national pilot projects on GNSS applications*

- ◆ **Identify the specific needs of individual plans and projects on GNSS at the regional and international levels, including specific training and capacity-building needs GNSS**
- ◆ **Develop a regional plan of action that would contribute to wider use of GNSS technology and applications and scientific exploration perspectives**
- ◆ *UN/UAE/USA Workshop on GNSS, 16 – 20 January 2011, Dubai, UAE*

Programme on GNSS Applications: Information Dissemination and Capacity Building

III. Training for capacity building in developing countries: *provide support to the regional centres for space science and technology education, affiliated to the United Nations, which would also act as the ICG Information Centres*

- ◆ **ICG Information Centres: Work further towards fostering a more structured approach to information exchange in order to fulfill the reciprocal expectations of a network between ICG and Regional Centres: *Morocco and Nigeria for Africa, Brazil and Mexico for Latin America and the Caribbean, and India for Asia and the Pacific***

- ◆ **Development of the GNSS Education Curriculum**

• ***United Nations/Italy Long-term Fellowship Programme on GNSS and Related Applications: <http://www.unoosa.org/oosa/en/SAP/gnss/fellowships.html>***

Programme on GNSS Applications: Information Dissemination and Capacity Building

IV. Promoting the use of GNSS technologies as tools for scientific applications in developing countries: *development and implementation of a training programme for the end users in various disciplines, such as a geodesy, geophysics, space weather and meteorology*

- ◆ **Provide a forum for exchanges among scientists and organizers of networks of instruments**
 - ◆ **Standards, communication of data policies to maximize the benefits of the networks**

UNOOSA: ICG Executive Secretariat

...to enhance the utilization of existing and planned opportunities

International Committee on Global Navigation Satellite Systems provides...

- ◆ **web-based information**
- ◆ **information brochures**

...and organizes

- ◆ **technical workshops and expert meetings**

...is also

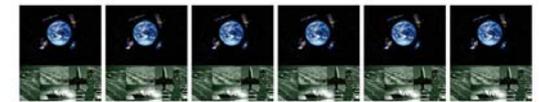
- **open for collaboration and cooperation**
- **would welcome your participation in and contribution to the ICG activities**



A forum to discuss Global Navigation Satellite Systems (GNSS) to benefit people around the world



Report on Current and Planned Global and Regional Navigation Satellite Systems
and Satellite-based Augmentation Systems (PDF format)
(please email unooosa for a hardcopy version of this booklet)



**Secretariat of the
International Committee on
Global Navigation Satellite Systems**

**United Nations Office for Outer Space Affairs
PO Box 500, 1400 Vienna, Austria**

Phone: +43 1 26060 5479

Fax: +43 1 26060 5830

E-mail: ooa@unvienna.org

Web: <http://www.icgsecretariat.org>