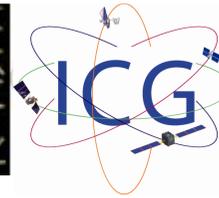




**Office for Outer Space Affairs**  
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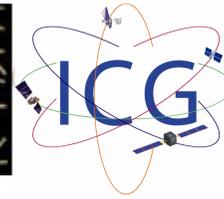


International Committee on  
Global Navigation Satellite Systems

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

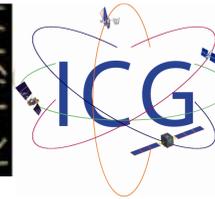
Sharafat Gadimova,  
United Nations Office for Outer Space Affairs, Vienna, Austria

**Fourth Meeting of the ICG**  
**14 – 18 September 2009**  
**Saint Petersburg, Russian Federation**



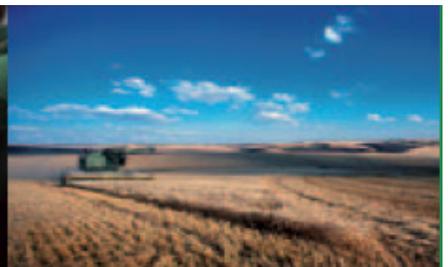
## **Outline**

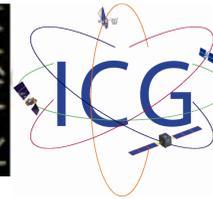
- I. Regional Workshops on Applications of GNSS**
- II. Training for Capacity-Building in Developing Countries**
- III. Promoting the Use of GNSS Technologies as Tools for Scientific Applications**
- IV. Use of GPS for Space Weather Utilizing Ground-Based World-Wide Instrument Arrays**
- V. Technical Advisory Services**
- VI. ICG Executive Secretariat**



## I. Regional workshops on applications of GNSS

- ◆ 2006 - 2009:
  - ◆ Zambia - *for African*
  - ◆ China – *for Asia and the Pacific*
  - ◆ Colombia – *for Latin America and the Caribbean*
  - ◆ **UN/Azerbaijan/USA/ESA Workshop on applications of GNSS, Baku, 11 – 15 May 2009 – for the benefit of Eurasian countries**
- ◆ Thematic areas:
  - ◆ ***Surveying, mapping and Earth Science - Agriculture and management of natural resources - Environmental monitoring and management – Transportation - Education and training, awareness increase***
- ◆ **2010: Moldova**

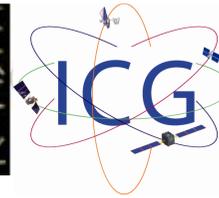




## II. Training for capacity-building in developing countries

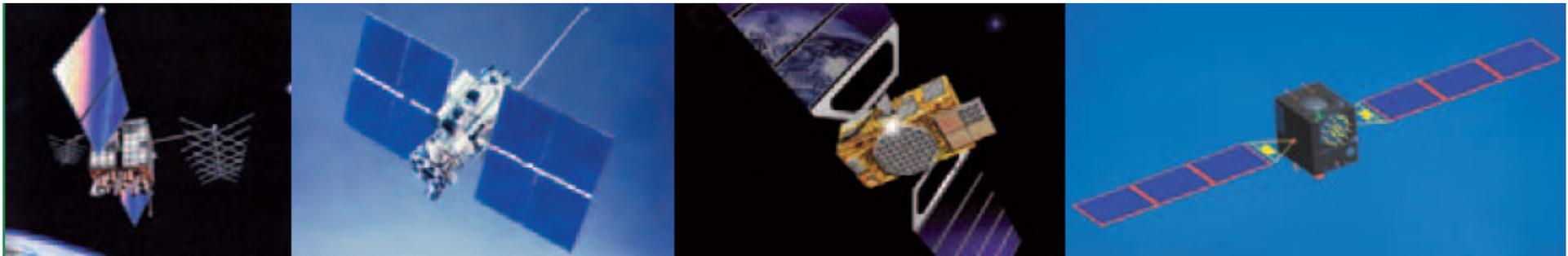
- ◆ 2008: *Regional Centre for Space Science and Technology Education in Asia and the Pacific, India*
- ◆ 2009: *Training Course on Satellite Navigation and Location-based Services, African Centre for Space Science and Technology – in French language, 28 September – 24 October, Morocco*
- ◆ 2009: *Training Course on the Use of GNSS for Development, Regional Centre for Space Science and Technology Education in Latin America and the Caribbean, 16 – 20 November, Mexico*
  - ◆ Initiating the development of a GNSS education curriculum
    - ◆ *RS and GIS - Space and atmospheric science – Satellite communications – Satellite meteorology and global climate*
  - ◆ ICG Information Centre:
    - ◆ *to foster a more structured approach to information exchange in order to fulfil the mutual expectations of a network linking ICG and the Centres*
    - ◆ *to connect the institutions involved/interested in GNSS applications with GNSS System Providers*
- ◆ 2010: *African Regional Centre for Space Science and Technology Education – in English language, Nigeria*





### III. Promoting the use of GNSS technologies as tools for scientific applications

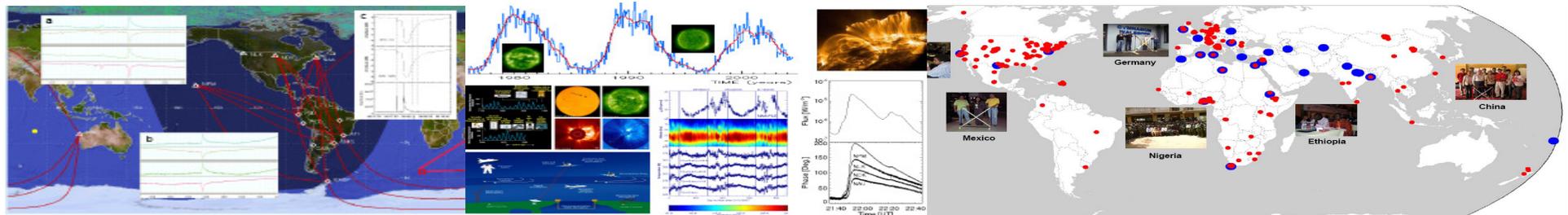
- ◆ Satellite Navigation Science and Technology for Africa, 23 March – 09 April 2009, the Abdus Salam International Centre for Theoretical Physics, Trieste, Italy
- ◆ Establishment of GNSS Permanent Stations and Data Processing Course, 24 August – 4 September 2009, Regional Centre for Mapping of Resources for Development (RCMRD), Nairobi, Kenya
  - ◆ Use of GNSS equipment in Africa for various disciplines (geodesy, geophysics, space weather and meteorology)
  - ◆ To coordinate and to facilitate scientists and organizers of networks of instruments – with a focus on GPS

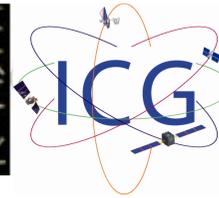




## IV. Use of GPS for space weather utilizing ground-based world-wide instrument arrays

- ◆ 2005 – 2009: Basic Space Science Initiative (UNBSSI) workshops
  - ◆ Dedicated to the International Heliophysical Year 2007 (IHY2007)
  - ◆ Deployment of 14 ground-based world-wide instrument arrays (GPS receivers-radio antennas – magnetometers, cosmic ray detectors) for research on:
    - ◆ Climate Change – Space Weather – Ionospheric Phenomena
  - ◆ 1000 instruments are operational
- ◆ **2010- 2012: International Space Weather Initiative (UNISWI)**
  - ◆ *Aspects of the response of the mid- and low-latitude ionosphere to magnetic storms and their space weather effects, including in-situ and ground-based observations as well as modelling and theoretical studies, particularly using GPS*
  - ◆ *To complement the ground based data, huge amounts of data from space based missions for Earth and heliospheric phenomena, which are freely accessible, and the analysis and interpretation of this data will be carried out*
  - ◆ **AWESOME, 26** (Atmospheric Weather Educational System for Observation and modeling of Effects)/**SIDs, 300** (Sudden Ionospheric Disturbance) monitors, USA
- ◆ **Workshop to Establish Scientific and Instrument Collaborations for Observing the Consequences of Space Weather from Morocco, 19 – 20 November 2009, Rabat, Morocco**





## V. Technical advisory services

- ◆ **Munich Satellite Navigation Summit 2009, 3 – 5 March 2009, Munich Germany**
- ◆ **First European Space Agency Global Navigation Satellite Systems Education Workshop, 12 – 13 March 2009, Madrid, Spain**
- ◆ **Second GNSS Vulnerabilities and Solutions Conference, 2- 5 September 2009, Baska, Croatia**
  
- ◆ **10<sup>th</sup> Austrian Day of Geodesy, 6 – 8 October, 2009, Schladming, Austria**
- ◆ **7<sup>th</sup> FIG Regional Conference, 19 – 22 October 2009, Hanoi, Vietnam**
- ◆ **13<sup>th</sup> IAIN World Congress, 27 – 30 October 2009, Stockholm, Sweden**
- ◆ **International GNSS Symposium, 30 November – 2 December 2009, Berlin, Germany**
- ◆ **International Global Navigation Satellite Systems Society's (IGNSS2009) Symposium, 1- 3 December 2009, Queensland, Australia**
  
- ◆ ***WGA Workshop on Interoperability, 30 November 2009, IGNSS2009, Queensland, Australia***

## VI. ICG Executive Secretariat

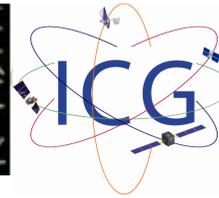
*...to enhance the utilization of existing and planned opportunities*

- ◆ 2006: web-based information – <http://www.icgsecretariat.org>
  - ◆ 2008: information brochures
  - ◆ 2009: technical workshops and expert meeting
- ◆ WGA Workshop on Interoperability, 30-31 July 2009, Vienna, Austria
  - ◆ WGC Workshop, 17 February 2009, Vienna, Austria
- ◆ Journals and Magazines
    - ◆ Inside GNSS
    - ◆ GPS World
    - ◆ Space Policy
- ◆ UNCOPUOS and STSC
    - ◆ Planning and organizational meetings for the annual meetings of the ICG





**Office for Outer Space Affairs**  
United Nations Office at Vienna



International Committee on  
Global Navigation Satellite Systems

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

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**Phone: +43 1 26060 5479**

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