UNITED NATIONS
Office for Outer Space Affairs

International Committee on
Global Navigation Satellite Systems

# *International Committee on Global Navigation Satellite Systems (ICG)*

Sharafat Gadimova

United Nations Office at Vienna

***United Nations Workshop on the Applications of Global Navigation Satellite Systems***

***14 – 18 May 2012***

***Riga, Latvia***

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# *International Committee on Global Navigation Satellite Systems (ICG)*

***A forum to discuss Global Navigation Satellite Systems***

***to benefit people around the world***

- **2005: Establishment of ICG**
  - **ICG Membership: Members, Associate Members and Observers**
    - **9 nations & the European Union**
    - **18 organizations (UN system entities, IGOs, NGOs)**
- **2011: ICG – 6, Tokyo, Japan**
  - **Fédération Aéronautique Internationale (FAI): Associate Member**
  - **Interagency Operations Advisory Group (IOAG): Observer**

***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***

# *International Committee on Global Navigation Satellite Systems (ICG)*

## 2006 – 2011: ICG Annual Meetings

- **UNOOSA (2006), India (2007), USA (2008), Russia (2009), Italy & EU (2010), Japan (2011)**

## 2007: Establishment of Providers' Forum

- **China (Compass/BeiDou), India (GAGAN/IRNSS), Japan (QZSS/MSAS), Russia (GLONASS), US (GPS), EU (Galileo/EGNOS)**

## 2012: ICG-7, Beijing, China, 5 – 9 November

**2013: ICG-8, Dubai, UAE**

## *ICG Preparatory Meetings: UNOOSA*

- ***Scientific and Technical Subcommittee (STSC)***
- ***Committee on the Peaceful Uses of Outer Space (COPUOS)***

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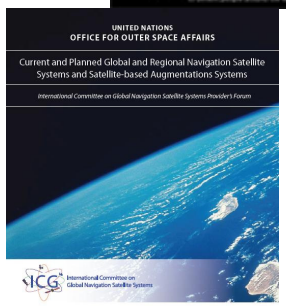
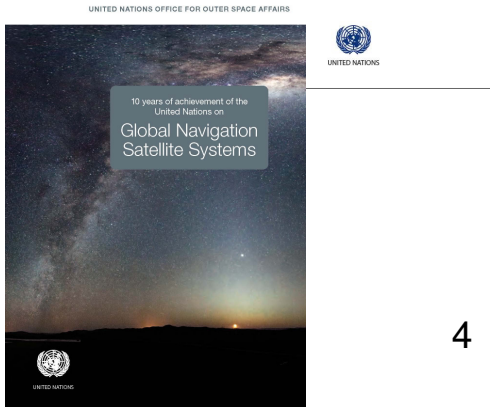
## ICG Working Groups

- ***Compatibility and Interoperability (USA and Russia)***
- ***Enhancement of performance of GNSS services (India and ESA)***
- ***Information dissemination and capacity building (UNOOSA)***
- ***Reference Frame, Timing and Applications (IAG, IGS, FIG)***


***ICG Executive Secretariat: UNOOSA***

***ICG website: [www.icgsecretariat.org](http://www.icgsecretariat.org)***




***Achievements of providers and users of positioning, navigation, and timing services, under the umbrella of the United Nations, in promoting GNSS over the past 10 years***

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

### WG-A: Compatibility & Interoperability

- **Continuation of WG-A Compatibility subgroup**
- **Proposed workshop on GNSS Spectrum Protection and Interference Detection and Mitigation**
- **Consensus on Open Service GNSS performance parameters, including definitions and calculation methods**
- **International GNSS Monitoring and Assessment**

### WG-B: Enhancement of the Performance on GNSS Services

- **Integrity via ARAIM**
- **Satellite Navigation in Natural Disasters**
- **Workshop on New Message Broadcasts in New Signals**
- **Establishment of a subgroup on "GNSS Applications"**
- **Interoperable GNSS Space Service Volume**
- **Standardization for Maritime Applications**

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

### WG-C: Information Dissemination and Capacity Building

- **Education and Training programmes on GNSS**
- **Promoting the use of GNSS technologies as tools for scientific applications**
- **Observation of space weather phenomena through the deployment of ground-based instrument arrays such as GPS receivers, magnetometers, solar telescopes, very low frequency (VLF) monitors, solar particle detectors, and data analysis and the sharing of recorded data**
- **Regional workshops on applications of GNSS**

### WG-D: Reference Frames, Timing and Applications

- **Finalization and publication of Templates on Geodetic and Timing References**
- **Interoperability of geodetic references among the different GNSS systems**
- **International GNSS Service Multi-GNSS Global Experiment – IGS M-GEX, as follow up to the Multi-GNSS demonstration campaign in Asia and Oceania**

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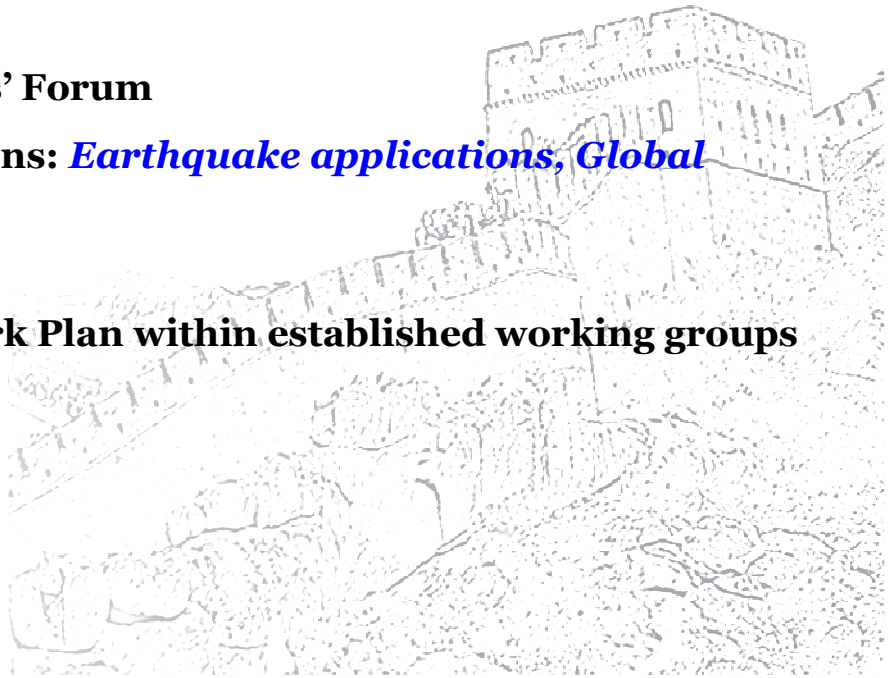
## 2012: Seventh Meeting of the ICG, Beijing, China, 5 – 9 November

- **Agenda:**
  - **Plenary Sessions:** ***Providers/Regional System and Service Updates***
  - **Providers' Forum Sessions:**
    - **Focused discussions on Open Service Information Dissemination, Service performance monitoring, Spectrum protection (interference detection and mitigation)**
    - **Future role of ICG and its Providers' Forum**
  - **GNSS Science and Technology applications:** ***Earthquake applications, Global Scientific applications, Space Weather***
  - **Working Group Meetings:**
    - **Progress on implementing ICG Work Plan within established working groups**
  - **Exhibits**



# *Programme on GNSS Applications:*

## *Information Dissemination and Capacity Building*

### International Space Weather Initiative:

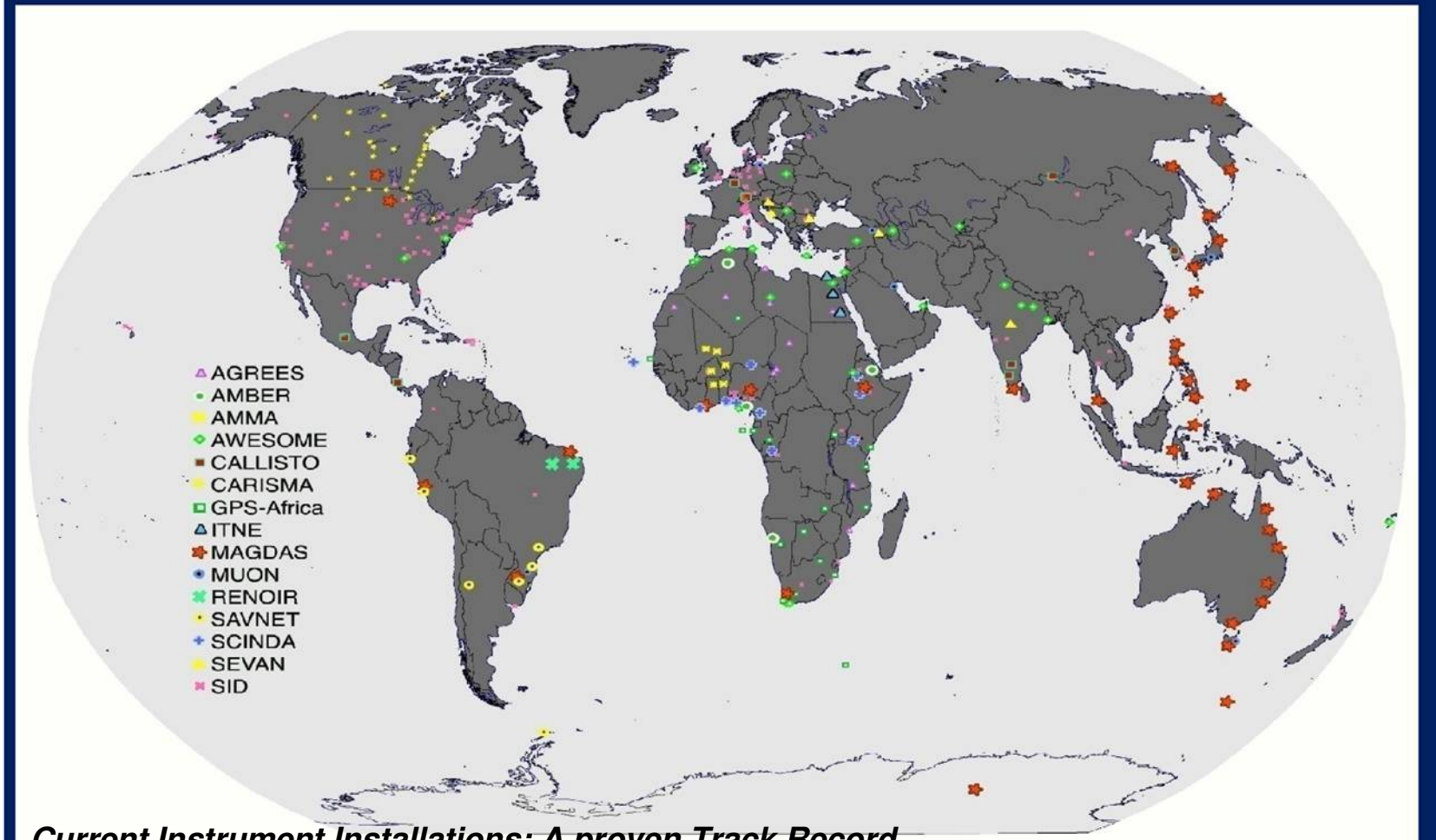
***A programme of international cooperation to advance the space weather science by a combination of instrument deployment, analysis and interpretation of space weather data from the deployed instruments in conjunction with space data, and communicate the results to the public and students***

***A follow-up activity to the Basic Space Science Initiative (BSSI) and the International Heliophysical Year 2007 (IHY2007), but focusing exclusively on space weather***

***Status and results of the instrument arrays, data recording and data analysis are being reported annually to UNCOPUOS that mandated the organization of three workshops:***

- ***2010: UN/Egypt Workshop, 6 – 10 November, Helwan University: Western Asia***
- ***2011: UN/Nigeria Workshop, 17 – 21 October, Abuja: Africa***
- ***2012: UN/Ecuador Workshop: 8 – 12 October, Latin America and the Caribbean***
  - ***International Centre for Space Weather Science and Education, Space Environment Research Centre (SERC), Kyushu University, Japan***
    **http://www.serc.kyushu-u.ac.jp/index_e.html**

**ISWI Website: http://www.iswi-secretariat.org/**




***Current Instrument Installations: A proven Track Record***

***This model for developing instrument networks was proven during IHY2007***

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## *Programme on GNSS Applications:*

## *Information Dissemination and Capacity Building*

### 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***

- ***UN/Latvia Workshop on GNSS, 14 – 18 May 2012, Riga, Latvia***
- ***Croatia: UN Workshop on GNSS, 2013***

- ***GNSS Education Curriculum:*** ***9-months postgraduate course (540 hours of theory & 540 hours of laboratory experiments, field visits, project works, and 1 year thesis).***
- ***The course is recommended, but not limited, to graduate in***
  - ***Electronics & Communications Engineering; Geomatics, Computer Software Engineering***
  - ***Regional Centres for space science and technology education, affiliated to the United Nations, also acting as the ICG Information Centres***
  - ***Indicative topics are arranged under the following topics: Fundamentals; Position Determination Techniques, Technologies (Augmented systems), Embedded System Design and Sensors, GNSS Receivers, GNSS/INS Integrated Navigation, GNSS Applications, Laboratory experiments, field visits, project work***

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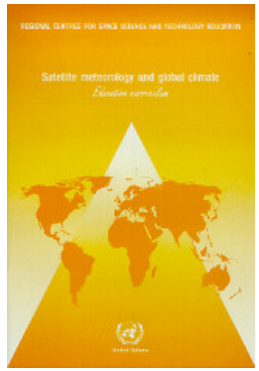
## *Programme on GNSS Applications:*

## *Information Dissemination and Capacity Building*

**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 also act as the ICG Information Centres***




- ***Africa: Morocco and Nigeria***
- ***Latin America and the Caribbean: Brazil and Mexico***
- ***Asia and the Pacific: India***
- ***Western Asia: Jordan***

- ***Remote Sensing & GIS, Satellite Meteorology & Global Climate, Satellite Communications, Space & Atmospheric Science***

  - ***International Centre for Global Navigation Satellite Systems Science, Technology and Education, International School of Beihang University, Beijing, China - http://ev.buaa.edu.cn/***

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