UNITED NATIONS
Office for Outer Space Affairs

United Nations International Meeting on the Applications of Global Navigation Satellite Systems

Hosted by the United Nations Office for Outer Space Affairs

Co-organized and co-sponsored by the International Committee on Global Navigation Satellite Systems (ICG)

United Nations Office at Vienna, Vienna International Centre
Vienna, Austria

12 – 16 December 2011

INFORMATION NOTE

1. Background Information

The use of the signals received from existing global navigation satellite systems (GNSS), the best known of which are the Global Positioning System (GPS) of the United States and the Global Navigation Satellite System (GLONASS) of the Russian Federation, has become a cross-cutting tool to support growth in precise positioning applications. With Europe's GALILEO satellite navigation system and China's COMPASS/BeiDou navigation system currently being developed and deployed, the number of satellites available at any given time will greatly increase, thereby enhancing the quality of the services and increasing the number of potential users and applications. Furthermore, a number of space-based augmentation systems and regional navigation satellite systems will add more satellites and signals to multiple systems of satellites and, as a result, improve positioning performance in terms of accuracy, availability, reliability and integrity. To benefit from these achievements, countries need to stay abreast of the latest developments in GNSS-related areas and build the capacity to use the GNSS signal.

The United Nations Office for Outer Space Affairs (UNOOSA), within the framework of its Programme on Space Applications, has been organising a series of regional workshops on applications of GNSS aimed at increasing awareness among decision makers and policymakers of the benefits of satellite navigation technology and establishing a broad framework for regional and international cooperation. The results of the series of regional workshops and the international meetings, carried out between 2001 and 2004, contributed to the work of the Action Team on GNSS, one of the 12 action teams established by the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS) to implement priority recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III). Under the leadership of the United States and Italy, the Action Team on GNSS consisted of 38 countries and 14 international organizations.

In 2004, the Action Team agreed on the distribution of its final report as a special United Nations publication entitled "Report of the Action Team on GNSS: follow-up to the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)[1]". The work of this Action Team could serve as a model for how the United Nations could undertake follow-up actions of global conferences to yield tangible results within a fixed time frame.

In 2005, the **International Committee on Global Navigation Satellite Systems (ICG)[2],** for which OOSA acts as Executive Secretariat, was established under the umbrella of the United Nations. ICG's establishment recognizes that GNSS has become a truly international resource and demonstrates the willingness of providers and users to ensure that GNSS services continue to be available in the future for the benefit of humankind. ICG is a milestone in the demonstration of Member States to cooperate in the use of outer space for peaceful purposes.

The following are the regional workshops on applications of GNSS that UNOOSA has carried out between 2001 and 2011:

- **Asia and the Pacific:** Kuala Lumpur, Malaysia, 20 - 24 August 2001 (see A/AC.105/771), Beijing, China, 4 – 8 December, 2006 (see A/AC.105/883);
- **Europe:** Vienna, Austria, 26 - 30 November 2001 (see A/AC.105/776), Baku, Azerbaijan, 11 – 15 May, 2009 (see A/AC.105/946), and Chisinau, Moldova, 17 – 21 May, 2010 (see A/AC.105/974);
- **Latin America and the Caribbean** – Santiago, Chile, 1 -5 April 2002 (see A/AC.105/795); and Medellin, Colombia, 23 – 27 June 2008 (see A/AC.105/920);
- **Africa** – Lusaka, Zambia, 15 - 19 July 2002 (see A/AC.105/785); and 26 – 30 June, 2006 (see A/AC.105/876);
- **Western Asia** – Dubai, the United Arab Emirates, 16 – 20 January 2011 (see A/AC.105/988).

Three international meetings were held at the United Nations Office at Vienna (UNOV), in Vienna, Austria in 2002, 2003 and 2004[3].

To commemorate the growth and results the Action Team on GNSS has achieved over the last ten years and look at what could be best achieved through a new approach in the next 5 to 10 years, the **United Nations International Meeting on the applications of GNSS** will be held at the United Nations Office at Vienna, Vienna International Centre, in Vienna from 12 to 16 December 2011. This meeting will bring together the results of the previous regional workshops and will seek to provide further follow up to the projects and recommendations referred to in the workshops indicated above. It will be an opportunity to build upon the results of each workshop contributing to defining a plan of action and the definition of functional partnerships in the long- term while also strengthening existing strategies at the regional level. It will also be an opportunity to build upon a number of on-going initiatives such as the International Space Weather Initiative (ISWI)[4], multi-GNSS demonstration project[5], the realization of the regional reference frames and systems, the activities of the UN-affiliated Regional Centres for space science and technology education also acting as the ICG Information Centres, and a long-term fellowship programme for in-depth training in GNSS and related applications[6], and also discuss proposals to be forwarded to the ICG to be held in 2012.

2. Venue and date

The **United Nations International Meeting on the Applications of GNSS** will be held in Vienna, Austria from 12 to 16 December 2011.The Venue of the Meeting will be the United Nations Office at Vienna, Vienna International Centre. All invited participants will receive an information package with details on board and lodging and other arrangements by electronic mail in due course .

[1] See http://www.unoosa.org/pdf/publications/st_space_24E.pdf
[2] See www.icgsecretariat.org
[3] See the report on the United Nations/United States of America International Meeting on the Use and Applications of Global Navigation Satellite Systems, Vienna, 13 – 17 December 2004, A/AC.105/846
[4] See http://www.iswi-secretariat.org/
[5] See http://www.multignss.asia/
[6] See http://www.unoosa.org/oosa/en/SAP/gnss/fellowships.html

3. Objectives and Expected outcomes

The Meeting will contribute to international cooperation by providing opportunity to exchange updated information on the use of GNSS technology and its applications.

The specific objectives of this Meeting are:

- Increase awareness among decision makers and representatives of research and academic community about on-going activities and trends in the use of GNSS technology, applications and services;
- Review of the results of the previous regional workshops, carried out between 2006 and 2011, and development of a plan of action for all regions that would contribute to the wider use of GNSS technology and its applications;
- Review of on-going and planned initiatives as well as case studies that could contribute to the wider use of GNSS technology and its applications, including the possibility of one or more national, regional and international pilot projects, in which interested institutions could incorporate the use of GNSS technology;
- Identify a functional partnership that could be established in order to promote the use of GNSS and its applications, as well as recommend how such a partnership could be established through voluntary actions that could include Governments, international organizations and other relevant stakeholders;
- Define recommendations and findings to be forwarded as a contribution to the ICG.

4. Themes to be addressed at the Meeting

The Meeting will address the following thematic areas:

I. Policies and strategies for promoting sustainable development: status update of current and planned global and regional navigation satellite systems and satellite-based augmentation systems that provide continuously optimized location and time information, transmitting a variety of signals on multiple frequencies available at all locations on planet Earth.

II. GNSS-based application areas: presentation of case studies focusing on but are not limited to the use of GNSS for civil aviation, including future GNSS requirements for aviation, and transportation (roads, highways, rail); positioning and navigation systems operation in the marine environment, including waterway navigation, harbor entrance/approach, ocean and harbor control of vessels; development and implementation of precision agriculture or site-specific farming and accurate tracking of environmental disasters such as fires and oil spills, flood prediction and, crustal and seismic monitoring; surveying and mapping; timing and telecommunications.

III. GNSS reference station system and services: geodetic framework, based on continues observation and analysis of GNSS data; realization of the regional reference frames known as African Geodetic Frame (AFREF) for Africa, Geocentric Reference System for the Americas (SIRGAS) for Latin America and the Caribbean, reference Frame Sub-Commission (EUREF) and the European Position Determination System (EUPOS) for Europe, and Asia-Pacific Reference Frame (APREF) for Asia and the Pacific and perspectives for a regional cooperative mechanism.

IV. National, regional and international initiatives/experiences in GNSS implementation and uses: the status of the follow-up projects and initiatives emanated from the regional workshops; development of new applications and proposals for joint experiments/demonstration projects.

V. International Space Weather Initiative (ISWI): instrument arrays of the initiative in operation; data analysis and modeling; atmospheric effects on GNSS signals and GNSS based systems, and the use of GNSS in remote sensing of the ionosphere; troposphere, and Earth sciences; monitoring Solar-terrestrial interaction at the United Nations Office at Vienna.

VI. Capacity–building, training and education in the field of GNSS: discussion of aspects that could contribute to the increased use of GNSS technology, including capacity building (the need for long-term and short-term training and education); an education curriculum on GNSS to be integrated into the programmes of the regional centres on space science and technology education, affiliated to the United Nations; utilization of the United Nations-affiliated regional centres, acting as information centres for ICG, as a "hubs" for training and information dissemination on global applications of GNSS and their benefits for humanity.

5. Programme

The Programme for the Meeting will include a series of technical presentations addressing the current and planned satellite-based navigation systems and the use of GNSS technology in a wide range of applications that provide direct and indirect benefits to the users or essential information on planning and carrying out programmes or projects in the areas indicated in section 4 above. Ample time will be set aside to allow for discussions on establishing functional partnerships in carrying out regional/international pilot projects, in which the use of GNSS technology could be incorporated. To demonstrate ISWI displays and the section dedicated to GNSS in the UNOOSA permanent space exhibit at the United Nations Office at Vienna, guided tour through the Vienna International Centre will also be organized by the United Nations Information Service (UNIS).

6. Working methods

Participants of the meeting are requested to deliver a presentation paper and materials covering information on the use of GNSS technology, case studies/projects in GNSS applications in their respective countries. The presentations may also include ideas on how to implement particular recommendations, or proposals for starting new initiatives or for further enhancing to ongoing or planned projects and programmes. Each speaker is allocated 20 minutes for the presentation and is requested to submit a copy of the presentation in Microsoft PowerPoint format at least two weeks before the commencement of the meeting. It is also necessary to submit an abstract of presentation with a maximum of 300 words including the following details: Paper Title, Author (s) Name(s), Affiliation(s), and e-mail address for the presenting author.

Presentations made at the meeting and the abstracts of the presentations will be published on the website of the Office for Outer Space Affairs approximately two weeks after the workshop at: www.unoosa.org

Participants are also expected to actively contribute to the preparation of the meeting's conclusions and recommendations, which will be published by the United Nations in the form of a report.

Participants considering to bring along posters, information materials or exhibits (e.g. hardware) are encouraged to do so. Kindly inform the organizers to ensure that all necessary arrangements are made.

7. Sponsorship of the Meeting

The United Nations Office for Outer Space Affairs is responsible for organizing this International Meeting. The United States of America through ICG is co-organizer and co-sponsor of the meeting. **Co-sponsorship of the meeting is still open to the ICG membership and other interested entities.**

8. Expected participants

The Meeting is being planned for a total of 70 participants, including policymakers, decision makers and senior experts from the following groups: international, regional and national institutions, United Nations agencies, space agencies, intergovernmental and non-governmental organizations, research and development institutions, academia and also from industry. **Equally qualified female applicants are particularly encouraged.**

Applicants are encouraged to review the recommended reference materials (see section 15 below).

9. Language of the Meeting

Applicants must have a good working knowledge of English, which will be the working language of the Meeting.

10. Deadline for submission of applications and abstracts

The completed application form together with the presentation abstract, properly endorsed by the applicant's Government/institution, should be directly submitted to the Office for Outer Space Affairs, United Nations Office at Vienna, Vienna International Centre, P.O. Box 500, A-1400, Vienna, Austria, **no later than Friday, 14 October 2011.**

Please note that on-line application form is available on the UNOOSA web site at the following address:

http://www.oosa.unvienna.org/oosa/en/SAP/act2011/un-gnss/index.html

We encourage all candidates to apply for the Meeting online, as it helps us to streamline the processing of applications as well as helps applicants to save their time.

11. Financial support

Within the limited funds made available by the co-sponsors, a limited number of selected participants will be offered financial support to attend the Meeting. This financial support will defray the cost of travel (a round trip ticket – most economic fare – between the airport of international departure in their home country and Vienna, Austria) and/or the room and board expenses for the duration of the meeting.

The selection process will be based on the information provided in the application form. Selected applicants will be notified within three weeks from the application closing date (see section 10 above).

12. Life and health insurance

Life/major health insurance for each of the selected participants is necessary and **is the responsibility of the candidate or his/her institution or Government.** The co-sponsors will not assume any responsibility for life and major health insurance, nor for expenses related to medical treatment or accidents.

13. Further information and contact details

For information regarding the submission of nominations for attendance and funding, please contact **Ms. Ayoni Oyeneyin**, United Nations Office for Outer Space Affairs, at the following e-mail address: ayoni.oyeneyin@unoosa.org

For information regarding the programme, presentations/abstracts and speakers of the Meeting, please contact **Ms. Sharafat Gadimova** at sharafat.gadimova@unoosa.org

The latest information on this Meeting and its relevant documentation, including the useful information for participants are available from the web site of the Office for Outer Space Affairs at

http://www.unoosa.org/oosa/SAP/gnss/index.html

14. Reference materials

- Report on current and planned global and regional navigation satellite systems and satellite-based augmentations systems, ST/SPACE 50, New York, 2010. (Electronic version is available on line at: http://www.unoosa.org/pdf/publications/icg_ebook.pdf)

- Report of the action team on global navigation satellite systems: Follow-up to the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), ST/SPACE/24, New York, 2004. (Electronic version is on-line at: http://www.unoosa.org/pdf/publications/st_space_24E.pdf)
- International Committee on Global Navigation Satellite Systems (ICG). (see the ICG Information Portal at: http://www.unoosa.org/oosa/en/SAP/gnss/icg.html)
- International Space Weather Initiative (ISWI). (see the website: http://www.iswi-secretariat.org/)
- Regional Centres for Space Science and Technology Education affiliated to the United Nations. (see the website: http://www.unoosa.org/oosa/en/SAP/centres/index.html)
- Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) and UNISPACE III+5. (See the website: http://www.unoosa.org/oosa/en/unisp-3/index.html