



UNITED NATIONS
Office for Outer Space Affairs

INFORMATION NOTE

United Nations/Azerbaijan/European Space Agency/United States of America Workshop on the Applications of Global Navigation Satellite Systems

Hosted by and Co-organized with the
Ministry of Telecommunications and Information Technologies

Baku, Azerbaijan

11 – 15 May 2009

1. Background

There is a remarkable and growing number of civil users of global navigation satellite systems (GNSS) such as the United States of America Global Positioning System (GPS), the Russian Federation Global Navigation Satellite System (GLONASS), the European Galileo system and the Chinese Compass/BeiDou and a growing number of satellites augmenting existing GNSS constellations, such as GPS and Geostationary Augmented Navigation System (GAGAN/IRNSS) of India, and Quasi-Zenith Satellite System (QZSS/MSAS) of Japan. For developing countries in particular, GNSS applications offer a cost-effective way of pursuing economic growth without compromising the need to preserve the environment, thus promoting sustainable development. Satellite navigation is now used in a wide range of sectors, including but not limited to, mapping and surveying, monitoring of the environment, precision agriculture and natural resources management, disaster warning and emergency response, aviation, and maritime and land transportation.

The Plan of Action to further develop space capabilities to meet the development goals emphasized by the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), held in Vienna from 19 to 30 July 1999, contained in document A/59/174 entitled “Review of the implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space” and endorsed by the General Assembly in its resolution 59/2 of 20 October 2004, presented findings and proposed actions in areas vital for the well-being and future of all nations. These actions include maximizing the benefits of the use and applications of GNSS to support sustainable development.

Since 2001, the Office for Outer Space Affairs of the United Nations has organized a series of regional workshops and international meetings to promote the use of GNSS. These workshops and meetings presented the status of existing and near-term GNSS systems and their augmentations and also presented examples of GNSS applications that support sustainable development and protect the environment.

The participants of the United Nations/United States of America International Meeting on the Use and Applications of Global Navigation Satellite Systems, which was held in Vienna in December 2004 as a meeting of GNSS experts, summarized the follow-up projects and initiatives being implemented since December 2003 and put forward a number of recognitions and

recommendations in the areas of: capacity development and knowledge building; enhancing awareness; and applications of GNSS technologies, while increasing their use to support sustainable development, particularly in developing countries. Information on the GNSS workshops, meetings and training courses carried out by the Office can be obtained on the following website: <http://www.oosa.unvienna.org/SAP/gnss/index.html>

In its resolution 61/111 of 14 December 2006, the General Assembly noted with appreciation that the International Committee on Global Navigation Satellite Systems (ICG) had been established on a voluntary basis as an informal body to promote cooperation, as appropriate, on matters of mutual interest related to civil satellite-based positioning, navigation, timing and value-added services, as well as the compatibility and interoperability of global navigation satellite systems, while increasing their use to support sustainable development, particularly in developing countries. 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. The details on the ICG are available at the ICG Information Portal at www.icgsecretariat.org

The United Nations/Azerbaijan/European Space Agency/United States of America workshop on the applications of GNSS will be held in Baku, Azerbaijan from 11 to 15 May 2009. It will address, *inter alia*, the space technology applications such as: remote sensing, precision agriculture, aviation, transport and communications, and e-learning. The workshop will aim at initiating pilot projects and strengthening the networking in the region. This workshop will also address the areas of natural resources management and environmental monitoring by applying GNSS technologies to thematic mapping, forest management and water resources management.

In the area of precision agriculture, the decision-making process could be significantly improved with the use of geospatial technologies, which allow for timely tactical or strategic decision-making at various levels. The use of GNSS could benefit various areas of the agricultural sector, ranging from basic rural cadastre and surveying to advanced precision agriculture. Agro-climatic and ecologic-economical zonings, crop inventory, monitoring and forecasting are only a few examples of agricultural activities where positioning is of paramount importance.

In the area of climate change, different factors and mechanisms drive land use and land cover transformation. In many cases, climate, technology and economics appear to be determinants of land-use change at different spatial and temporal scales. At the same time, land conversion is an adaptive feedback mechanism that farmers use to smooth the impact of climate variability, especially in extremely dry and humid periods. Satellites have for several years been an indispensable resource in global observation of the Earth and weather systems. They bring undeniable added value to global climate models but much remains to be done in developing finer-scale models capable of use in a regional or national setting. Space-based systems such as GNSS has demonstrated its ability to make precise and detailed observations of key meteorological parameters, whose measurement stability, consistency and accuracy should make it possible to quantify long-term climate change trends.

In the area of transport domain, a number of studies have already shown that civil aviation will significantly benefit from the use of GNSS. These benefits include: improved navigation coverage in areas currently lacking in conventional aids, accurate and reliable information about aircraft positions and routes enables safe and efficient management of air traffic, and thereby safety on airport approaches. Road transport applications can automatically revise a route to account for traffic congestion, changes in weather or road works. Similarly, at sea GNSS technologies can provide efficient route planning, collision avoidance and increased efficiency in search and rescue

situations. For rail transport, GNSS offers enhanced cargo monitoring and assists track surveying.

In addition, communication systems, electrical power grids, and financial networks all rely on precision timing for synchronization and operational efficiency. For example, wireless telephone and data networks use GPS time to keep all of their base stations in perfect synchronization. This allows mobile handsets to share limited radio spectrum more efficiently.

2. Objectives and expected outcomes

The objectives of this Workshop are: (i) to introduce GNSS technology and its applications to transport and communications, aviation, surveying, mapping and Earth science, management of natural resources, precision agriculture, the environment and disasters; (ii) to strengthen regional information and data exchange networks on the use of GNSS technology; (iii) to initiate pilot projects for joint work at the regional level.

3. Preliminary programme of the Workshop

The programme will include plenary sessions and sufficient time for discussions among participants to identify the priority areas where pilot projects should be launched and examine possible partnerships that could be established. As a preliminary suggestion the following sessions will be organised:

- Thematic Sessions:
 - ❑ Update on satellite-based navigation systems in operation and under development (GPS, GLONASS, GALILEO, Compass/BeiDou, GAGAN/IRNSS, QZSS/MSAS);
 - ❑ Aviation;
 - ❑ Transport and communications;
 - ❑ Surveying, mapping and Earth science;
 - ❑ Management of natural resources, the environment and disasters;
 - ❑ Capacity building

- Discussion Sessions:
 - ❑ Interoperability/compatibility of global and regional navigation satellite systems and augmentations from user perspective
 - ❑ Regional cooperation in the use of GNSS applications
 - ❑ Issues, concerns and approaches for pilot projects, requirements of implementing, possibilities of success, mechanisms and resources of implementing

4. Expected participants

The Workshop is being planned for a total of 80 participants including policymakers, decision makers and senior experts from the following groups: international, regional, national and local institutions, research and academic institutions, multi-lateral and bi-lateral development agencies, non-governmental organizations, and also from industry.

5. Participation requirements

Participants should be in senior managerial or decision-making responsibility at governmental

agencies, national and regional institutions, non-governmental organizations or industry.

6. Language of the Workshop

The working language of the Workshop will be English, Azerbaijani and Russian. Simultaneous translation will be provided.

7. Financial support

Within the limited financial resources available, a limited number of selected participants will be offered financial support to attend the Workshop. 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 Baku, Azerbaijan) and/or the room and board expenses during the duration of the Workshop.

8. Deadline for Submission of Applications

The completed application form, properly endorsed by the applicant's Government/institution, should be mailed 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, 6 March 2009**. The applicant may also submit his/her application through the Office of the Resident Representative of the United Nations Development Programme in the applicant's respective country. In either case an advance copy of the application form should be faxed directly to the Office for Outer Space Affairs to Ms. Ayoni Oyeneyin, Office for Outer Space Affairs, United Nations Office at Vienna, Fax: +43-1-26060-5830

9. 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.

10. Points of contact

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 above address and fax number or at the following e-mail address: ayoni.oyeneyin@unvienna.org

For information regarding the agenda and programme of the Workshop, please contact **Ms. Sharafat Gadimova**, United Nations Office for Outer Space Affairs at the above address and fax number or at the following e-mail address: sharafat.gadimova@unvienna.org

The focal point for Azerbaijan will be **Mr. Geidar Ismailov**, Ministry for Telecommunications and Information Technologies, E-mail: ismayilov@mincom.gov.az