INFORMATION NOTE

United Nations/Colombia/United States of America Workshop on the Applications of Global Navigation Satellite Systems

Follow up to the 5th Space Conference of Americas and
Preparatory for the 6th Space Conference of Americas

Hosted by and Co-organized with
the Vice Presidency of the Republic of Colombia, and
the Colombian Commission on Space (CCE)

Medellin, Colombia
23 – 27 June 2008

1. Background

The technology of global navigation satellite systems (GNSS) is currently being used in a wide range of sectors including but not limited to: mapping and surveying, monitoring of environment, agriculture and natural resources management, disaster warning and emergency response, aviation, maritime and land transportation.

The Plan of Action, 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, presented findings and proposed specific actions in the areas that are important for strengthening and further developing the well-being and the future of all nations. These actions include, among others, maximizing the benefits of the use and applications of global navigation satellite systems to support sustainable development, improving medical and public health services through the use of space technologies, developing a comprehensive, worldwide environmental monitoring strategy as well as improving the management of the Earth's natural resources.

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.

In 2006 the Office for Outer Space Affairs of the Secretariat scheduled, in coordination with co-organizers, activities focusing on capacity-building in the use of GNSS in various areas of applications that support sustainable development, as follows:

(a) United Nations/Zambia/European Space Agency Workshop on the Applications of Global Navigation Satellite System Technologies for Sub-Saharan Africa, held in Lusaka from 26 to 30 June 2006 (see A/AC.105/876);

(b) United Nations/China/European Space Agency Training Course on the Use and Applications of Global Navigation Satellite Systems, held in Beijing from 4 to 8 December 2006 (see A/AC.105/883).

In 2006, a regional project on preventing malaria using space technology was initiated by the "Pan American Group for Tele-Epidemiology" under the Task Force on Health Using Space Technologies for Latin America and the Caribbean region as a follow-up to the United Nations/Argentina/European Space Agency Workshop on Applications of Space Technology to Human Health for the benefit of Latin American and the Caribbean Countries held in Córdoba, in September 2005 (A/AC.105/860). The Group also organized the "Health Workshop" during the XII Symposium of the Latin American Society in Remote Sensing and Geographical Information Systems (SELPER), held in Colombia, in September 2006.

In view of following up to the aforementioned activities, taking into account the objectives of the forthcoming Sixth Space Conference of Americas, and carrying out the plan of action that was established at the International Workshop held in Bogotá in 2005, the Satellite Navigation Group of the Colombian Commission on Space (CCE) is co-organizing with the United Nations Office for Outer Space Affairs and the United States of America a Workshop on the Applications of Global Navigation Satellite Systems (GNSS) from 23 to 27 June 2008. The Workshop will be held in Medellin, Colombia. It will examine the progress of the projects launched in 2005, provide fresh impetus to projects that have not yet moved forward, and will also make way for new projects related to the implementation and use of satellite navigation technology.

The Workshop will address the GNSS applications to: precision farming that improves agriculture productivity and food security; climate change that affects land use, forest and agriculture; tele-health and tele-epidemiology that provides early warning to infectious diseases such as dengue fever, chagas disease, malaria, etc.; e-learning that stimulate the growth of indigenous nuclei capacity in Latin American and the Caribbean countries. It will also address the following applications: knowledge management, augmentation systems for navigation, and reference systems and geographic information systems.

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.

Tele-health and landscape epidemiology involves the characterization of eco-geographical areas where diseases develop under the assumption that the biological dynamics of both host and vector population are driven by landscape elements such as temperature and vegetation. It can be understood as part of a second-generation application of remotely sensed data where the target cannot be seen directly with satellite images.

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.

2. Objectives and expected outcomes

The objectives of this Workshop will include:

(i) Sharing experience of GNSS application projects that are already implemented in countries of the region in order to gain insight of lessons learned;

(ii) Increasing the regional technical and human capacities in the GNSS applications, aiming at establishing regional cooperation programs to synergize resources;

(iii) Initiating pilot projects for joint work at the regional level;

(iv) Exploring the possibility of setting up national and regional coordination mechanisms among authorities in the related fields, aiming at exchanging experience, identifying common needs, implementing coordinated actions and disseminating information on the various applications of GNSS technologies; and

(v) Review the status of currently existing plans and projects on GNSS at the regional and international levels for near, medium and long term applications.

This Workshop will be held in conjunction with the meeting of the Satellite Navigation Group of the CCE. Each working group will examine one of the four agenda items. The targeted results will include the following:

(i) Establishment and consolidation of specific regional and national working groups and their work schedules for particular projects;

(ii) Definition of ways and means of supporting specific pilot projects, resources, work schedules and the project leaders;

(iii) Definition of a regional coordination mechanism that could serve as an interface to the International Committee on GNSS (ICG);

(iv) An update of the GNSS inventory document for the Latin American and Caribbean Region.

3. Preliminary programme of the Workshop

The programme of the Workshop will include, but not be limited to, the following topics:

- State-of-the-art use of GNSS technologies in precision agriculture, climate change, tele-health and landscape epidemiology, e-learning, knowledge management, augmentation systems for navigation, reference systems and geographic applications, and other related fields;
- Regional/national experiences and case studies on GNSS application in areas such as: precision agriculture, climate change, tele-health and landscape epidemiology, e-learning, knowledge management, augmentation systems for navigation, reference systems, and other related applications;
- Sharing experience of implementing GNSS application projects in the region, particularly on issues, concerns, and lessons learned during the implementation;
- Exploring the possibility of setting up national and regional coordination mechanisms;
- Review the status of currently existing plans and projects on GNSS;
- Working Groups discussion sessions to exchange views and discuss topics related to the objectives of this 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.

4. Expected participants

The Workshop is being planned for a total of 100 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 and Spanish. Simultaneous interpretation will be provided by the host organization.

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 Medellin) 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, 4 April 2008.** 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 points for Colombia will be:

Colombian Space Commission: secretariacce@igac.gov.co, Instituto Geográfico Agustín Codazzi- IGAC- Carrera 30 No 48-51. CIAF Centro de Investigación y Desarrollo en Información Geográfica. Tel.: (+) 57 1 3694086.

Colombian Civil Aviation Authority, Mr. Hector Matamoros, who can be contacted regarding local arrangements including the venue of the Workshop, arrival at Medellin, hotel accommodation, transportation to and from the hotel and other logistical details, at the following e-mail and numbers: hector.matamoros@aerocivil.gov.co , Tel.: (+57) 1 266 36 72.