



UNITED NATIONS  
Office for Outer Space Affairs

## INFORMATION NOTE

### **20<sup>th</sup> UN/IAF Workshop on “GNSS Applications for Human Benefit and Development”**

**To be held in Prague, Czech Republic, from 24 to 25 September 2010,  
in conjunction with the 61<sup>st</sup> International Astronautical Congress**

**Co-sponsored by European Space Agency (ESA) and by International Committee on  
Global Navigation Satellite Systems (ICG)**

#### **1. Background**

The United Nations (UN) and the International Astronautical Federation (IAF) have agreed to jointly organise a Workshop on the theme “GNSS Applications for Human Benefit and Development”, from 24 to 25 September 2010. The Workshop will be held in conjunction with the 61<sup>st</sup> International Astronautical Congress (IAC), which will take place from 27 September to 1 October 2010 in Prague, Czech Republic. Workshop participants selected by the UN and IAF will be also invited to attend the IAC.

This Workshop is the 20<sup>th</sup> in the series of meetings jointly organised by the Office for Outer Space Affairs, under the United Nations Programme on Space Applications, and by the International Astronautical Federation. It builds on the recommendations and experience gained from previous workshops. The UN/IAF Workshop has been endorsed by the United Nations General Assembly as part of the 2010 activities of the United Nations Programme on Space Applications.

The UN/IAF Workshop and the 61<sup>st</sup> IAC provide a unique forum for discussions among space experts, policy and decision makers, representatives from academic community and private industry. Participants are encouraged to share their experiences and to examine opportunities for better cooperation. In the past, contacts established among participants have resulted in a number of initiatives and activities strengthening the role of space technology applications for improving the quality of life in developing countries.

The proceedings of the Workshop will be published online by the Office for Outer Space Affairs to increase the awareness of the capabilities and benefits of space technology applications. The report of the Workshop, including findings and recommendations formulated by the participants, will be presented to the United Nations Committee on the Peaceful Uses of Outer Space.

## 2. Objectives

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.

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.

With the increased use and application of GNSS and the requirements to relate the Global Positioning Satellite (GPS) solutions with already existing mapping products based on local and national coordinates reference systems, there is an urgent need to establish and determine the transformation data to and from such systems to GNSS reference systems. This will be achieved on full realization of the regional reference frames known as African Geodetic Frame (AFREF), Geocentric Reference System for the Americas (SIRGAS), Reference Frame Sub-Commission for Europe (EUREF) and the European Position

Determination System (EUPOS), and the Asia Pacific Regional Reference Frame (APREF).

The Plan of Action, contained in the UN 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.

The United Nations Office for Outer Space Affairs, as the Executive Secretariat of the ICG, develops, in cooperation with international, regional and national agencies/institutions, a wide range of activities focusing on capacity building, specifically, in deploying instruments for the international space weather initiative (ISWI), developing a GNSS education curriculum, and utilizing regional reference frames.

The Workshop will address these issues and will discuss GNSS technologies, applications and services that contribute into sustainable economic and social development programmes, primarily in developing countries, with the following main objectives:

- To increase awareness among decision makers and representatives of research and academic community about ongoing activities and trends in the use of GNSS technologies, applications and services;
- To examine GNSS technologies, applications and services available for addressing social and economic issues;
- To strengthen institutional and human capacity building in the area of GNSS technologies, applications and services; and
- To strengthen international and regional cooperation in the subjects.

### **3. Programme**

The Workshop will be composed of a series of technical presentations with sufficient time set aside for discussions. Technical sessions will be followed by open discussions, which will focus on specific topics of interest and will provide additional opportunities for participants to voice their opinions.

The programme of the Workshop may include, but is not limited to, the following topics:

- Status of and trends in existing and planned satellite-based navigation systems.
- Applications of GNSS technologies and services for sustainable development (*application areas may include environment, agriculture, disaster management, civil aviation, land transportation, maritime applications, LBS, surveying and mapping, scientific applications, timing and telecommunications*).
- International initiatives, programmes and cooperation.
- Capacity building in developing countries, including discussions on human, financial and technical resources required for successful use of GNSS technologies and services.
- Presentations on practical experiences and case studies by participants.

Participants of the Workshop are encouraged to make presentations on the topics suggested above, as well as to participate actively in all discussions of the meeting and its Working Groups.

Co-organizers of the event also plan to continue a practice of holding a concluding round table discussion with participation of heads/top managers of space agencies and other relevant national/regional/international institutions and organizations from both space faring and non-space faring countries in order to establish a direct dialogue with the Workshop participants on how space technologies and policies in general, and GNSS technologies in particular, can contribute into sustainable development programmes in developing countries. The round table will also discuss issues and problems in participants' countries as well as will open an exchange of pragmatic ideas between decision-makers and leaders from the above-mentioned organizations and participants of the Workshop.

The latest version of the programme will be made available on the web site of the UN Office for Outer Space Affairs (<http://www.unoosa.org>).

#### **4. Date and location of Workshop**

The Workshop will be held from 24 to 25 September 2010 as part of the 61<sup>st</sup> International Astronautical Congress (IAC). Participants who are selected and funded by the co-sponsors will be able also to attend the IAC, which will take place from 27 September to 1 October 2010, also in Prague, Czech Republic.

All selected participants will receive an information package with details on boarding, lodging and other local arrangements.

#### **5. Language of the Workshop and presentation by participants**

Applicants must have a good ability of English, which will be the **only** working language of the Workshop.

Selected participants who are funded by the cosponsors of the Workshop will be required to prepare a presentation of approximately 10 to 20 minutes on topics relevant to the Workshop objectives and the programme. Presentations on actual on-going projects will be of particular interest to organizers of the Workshop.

## 6. Participation requirements

Applicants must have a university degree and well-established professional working experience in a field related to the theme of the Workshop. Applicants should be working in relevant government organizations, international or national agencies, non-governmental organizations, research or academic institutions or industry.

Special consideration will be given to the applicants:

- who are policy- and decision- makers;
- who have papers accepted by the IAC International Program Committee;
- who have experience in leading or performing project(s) in the topic areas, or who have sound ideas and good potential of realizing the ideas to real projects.

**Equally qualified female applicants are particularly encouraged.**

The co-sponsors of the Workshop will jointly select participants on a competitive basis. Selected participants will be notified by 18 June 2010.

## 7. Financial arrangements

Within the limited financial resources available to the co-sponsors, a number of selected participants from developing countries will be offered financial support to attend the Workshop and IAC. Funded participants will be provided with round trip air tickets between the international airport of their home countries and the international airport at Prague, Czech Republic. The funded participants will also be provided with daily subsistence allowance to cover board and lodging for the duration of the Workshop and IAC. Any en-route expenses or any changes made to the tickets will be at the participant's own expense.

Due to limited availability of financial support, not all participants can be funded. In this respect, applicants and their nominating organizations are strongly encouraged to find additional sources of sponsorship to allow them to attend the Workshop.

Funded participants will receive detailed information upon notification of their selection.

## 8. Deadline for Submission of Applications

The completed application form, properly endorsed by applicant's government/institution, should be mailed to:

Office for Outer Space Affairs  
United Nations Office at Vienna  
Vienna International Centre  
P.O. BOX 500  
A-1400 Vienna, AUSTRIA  
Fax: (+43-1) 26060-5830  
E-mail: [unpsa@unvienna.org](mailto:unpsa@unvienna.org)

to reach the Office **no later than 15 May 2010**. The applicant may also submit the original of his/her application through the Office of the Resident Representative of the United Nations Development Programme (UNDP) in the applicant's respective country.

In either cases, *an advance copy of the application form should be e-mailed or faxed directly to the Office for Outer Space Affairs.*

Please also note that on-line application form is expected to be available on the OOSA web site (<http://www.oosa.unvienna.org/oosa/en/SAP/act2010/un-iaf/index.html>) at the beginning of March 2010, and we would encourage applicants to apply for the Workshop on-line.

Applications received later than the deadline will be considered, but applicants will not be eligible for financial support.

## **9. Life and Health Insurance**

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

## **10. Additional Information**

For up-to-date information on this activity please refer to the Office for Outer Space Affairs website at <http://www.unoosa.org>.