

**17<sup>th</sup> Session of the Asia Pacific Regional Space Agency Forum**  
**“The role of space technology and industry in addressing climate change”**  
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Ladies and gentlemen, distinguished participants at the 17<sup>th</sup> Session of the Asia Pacific Regional Space Agency Forum,

I'm grateful to the organizers of this Forum for the invitation to address you now on behalf of the UN COPUOS.

Many years ago I had the opportunity to see the Earth from outside the atmosphere, to understand how unique and fragile is it, and how global are its problems. Climate change represents now one of the most challenging problems of our planet and only addressing it in a global, coordinated manner we may face its consequences.

The main theme of the present 17<sup>th</sup> session of APRSAF “the role of space technology and industry in addressing climate change” is promising as incentive for broader dialogue and closer cooperation among Member States of the Committee on the Peaceful Uses of Outer Space. COPUOS remains a unique platform at the global level to promote such dialogue. In view of the call by the General Assembly to promote regional and interregional cooperation, the APRSAF has an outstanding opportunity to demonstrate its well-founded and important role as a high-level mechanism for decision- and policy-making.

The General Assembly recognizes in that regard the important role played by conferences and other mechanisms in strengthening regional and international cooperation among States. The Asia-Pacific Regional Space Agency Forum is specifically mentioned, together with other major regional mechanisms, in pursuing that role.

The Committee on the Peaceful Uses of Outer Space (COPUOS) has for many years worked towards strengthening international, regional and interregional cooperation and coordination of space activities among its Member States. There are several items on the Agenda of the Committee that relate closely to this overarching endeavor, and addresses activities in the field of Earth

observation and remote sensing, Global Navigation Satellite Systems, space-based disaster management support, and space science. Capacity-building and education are cornerstones in the work of COPUOS to promoting space capabilities and capacity in global society.

COPUOS contributes regularly to the work of the Commission on Sustainable Development (CSD) with a report on space tools for sustainable development addressing the main areas considered under the biannual thematic cluster of work of the CSD. Likewise, upon the request of COPUOS, the General Assembly has entered into a programme of panel discussions every year addressing space technology applications in relation to topics of major concern to humanity. For the past four years the GA has held such panel discussions on climate change, food security, global health, and this year on space and emergencies. These initiatives by the Committee attributes to the overall implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III) and its comprehensive follow-up process (the so-called UNISPACE III+5).

In his remarks during the World Policy Conference in Marrakesh on 16 October 2010, the Secretary-General of the United Nations, Ban Ki-moon, reiterated the need for global governance to address the threat of **climate change**.

In order to guide the efforts of UN agencies and organizations, the Secretary-General has promoted a “One UN” approach with the purpose of streamlining the efforts conducted by more than 15 agencies and organizations which are part of the United Nations System. Under the coordination of the Chief Executives Board for Coordination (CEB), the Secretary-General called upon these agencies and organizations to develop a strategic, coherent, and operational framework to support the inter-governmentally agreed decisions within the United Nations Framework Convention on Climate Change (UNFCCC). The framework aims to maximize existing synergies, eliminate duplication of efforts, and optimize the impact of the collective effort of the UN system.

In the context of peaceful uses of outer space, the importance of space science and space applications was recognized in the UNISPACE III Conference which took place in Vienna, Austria, in July 1999. Governments reiterated the need to

protect the Earth's environment, and to promote international cooperation on the use of satellite applications for such topics as climate change.

At its 48th Session in 2008, the Committee on Peaceful Uses of Outer Space reiterated the need for the Office for Outer Space Affairs to enhance its efforts on climate change. To this end, OOSA has established the topic of climate change as one of its Operational Priorities, and has conducted a variety of activities in terms of symposia and workshops. To streamline its efforts on climate change, OOSA has developed this Climate Change Strategy which promotes the use of space-based applications.

Furthermore, the Inter-Agency Meeting on Outer Space Activities at its 30<sup>th</sup> session in March 2010 decided that WMO together with OOSA and in consultation with other participating UN entities should prepare a special report related to climate change for submission to COPUOS at its 54<sup>th</sup> session in 2011. The report is now being finalized for endorsement by the Inter-Agency Meeting at its 31<sup>st</sup> session in March 2011. OOSA serves as secretariat of this inter-agency mechanism in the UN system for coordination of space-related activities.

Within the context of COPUOS, climate change is on the agenda. At its fifty-second session, COPUOS took note of two Conference Room Papers focusing on the topic of Climate Change:

- Conference Room Paper No. 5, presented by WMO, entitled: Space and Climate Change (*A/AC.105/2009/CRP.5*);
- Conference Room Paper No. 6, presented by UNOOSA, entitled Space and Climate Change (*A/AC.105/2009/CRP.6*).

These two Conference Room Papers presented an update on what activities these two agencies were conducting on this topic of climate change.

Under its agenda item on climate change, at its fifty-third session in 2010, COPUOS noted that the adverse effects of climate change constituted a threat to all humanity and were manifested in a variety of phenomena, such as unusual weather, including droughts in some regions and floods in others; unusual dust storms in the Arabian region; glacial retreat in the Himalayas; and changes in the polar ice sheets. The Committee noted the efforts conducted in various countries regarding the deployment of satellites carrying a variety of instruments to measure some essential climate variables and to monitor different

processes related to climate change, such as emissions of greenhouse gases and aerosols, atmospheric dynamics, deforestation emissions and land degradation. The Committee also noted international efforts conducted under the auspices of the United Nations system (in particular, the United Nations Framework Convention on Climate Change and the World Meteorological Organization), as well as other international initiatives, such as those of the Committee on Earth Observation Satellites, the Group on Earth Observations, the Global Earth Observation System of Systems, the Global Monitoring for Environment and Security and the Intergovernmental Panel on Climate Change.

In the framework of the **United Nations Programme on Space Applications** which receives its mandate from the Committee on the Peaceful Uses of Outer Space, OOSA has launched the Basic Space Technology Initiative (BSTI) to support capacity building activities in the development of space technology. In particular the Initiative builds on the opportunities offered by the development of small satellite missions with platforms in the 1-100 kg class and their scientific and operational applications.

In September 2010 the Second United Nations/European Space Agency/Austria Symposium on "Small Satellite Programmes for Sustainable Development: Payloads for Small Satellite Programmes" was held in Graz, Austria. The Symposium saw strong participation from small satellite experts from the Asia Pacific Region. Following the third meeting in this series of BSTI Symposiums in 2011, OOSA plans to organize a regional BSTI meeting in the Asia Pacific Region in 2012 to discuss regional aspects of basic space technology development. In the framework of BSTI, OOSA has also published a directory of "Educational Opportunities in Aerospace Engineering and Small Satellite Development: (<http://www.unoosa.org/oosa/en/SAP/bsti/index.html>).

In cooperation with aerospace engineering universities OOSA is also embarking on the development of a United Nations education curriculum in aerospace engineering. OOSA has noted the activities of the STAR program of APRSAF and is open to consider possibilities for future collaboration on topics of common interest in capacity building in basic space technology development.

Pursuant to recommendations of UNISPACE III, a new international mechanism for coordination of positioning, navigation, and timing through satellite systems, the **International Committee on Global Navigation Satellite Systems (ICG)**, was established in 2005, and held its annual meetings at the United Nations Office at Vienna (2006), India (2007), United States (2008), Russian Federation (2009), and Italy/European Commission (2010) to review and discuss matters relating to GNSS and their applications. The next annual meeting will be hosted by Japan in 2011. COPUOS is regularly informed about the activities and development of the ICG. OOSA serves as Executive Secretariat of ICG.

The current workplan of ICG include improvement of compatibility and interoperability of GNSS systems; enhancement of performance of GNSS services; information dissemination and capacity-building; reference frames, timing and applications, and support for Multi-GNSS campaigns. Members of ICG cooperate on matters of mutual interest related to civil satellite-based positioning, navigation, timing and value-added services. In particular, they cooperate to the maximum extent practicable to maintain radio frequency compatibility in spectrum use between different GNSS systems in accordance with the International Telecommunication Union (ITU) Radio Regulations. Within ICG, representatives from industry, academia, and governments share views on GNSS compatibility and interoperability.

As part of ICG, a Providers Forum was established in 2007 with the aim to promote greater compatibility and interoperability among current and future providers of GNSS. The current members of the Providers Forum, including China, India, Japan, the European Community, the Russian Federation and the United States, address key issues such as ensuring protection of GNSS spectrum and matters related to orbital debris/orbit de-confliction.

To support the work of the ICG, OOSA through its Programme on GNSS, is organizing regional workshops, training courses and international meetings focusing on capacity-building in the use of GNSS in applications on land, at sea and in the air, as well as focusing on deploying instruments for the international space weather initiative (ISWI). Every year these activities bring together a large number of experts, including those from developing countries, to discuss and act on issues that are also of high relevance to the ICG. A cornerstone in the capacity building efforts of the Programme is a network of Regional Centres for

Space Science and Technology Education, affiliated to the United Nations, which also serve as ICG information centres to promote GNSS applications and education.

The topic of disasters is continually discussed in the Scientific and Technical Subcommittee of COPUOS under its agenda item on **Space-system-based disaster management support**. In the particular case of Haiti and in the context of the earthquake which provoked a catastrophe on 12 January 2010, the Subcommittee noted that loss of life and property could be diminished if better information was made available to improve risk assessment, early warning and monitoring of disasters, and stressed the critical role that space-based systems could play in supporting disaster management by providing accurate and timely information and communication support.

COPUOS has long recognized the relevance of using space-based information to support tasks conducted in all phases of the disaster management cycle. Upon the recommendation of COPUOS, the General Assembly of the United Nations established the UN-SPIDER programme through its resolution 61/110 of 14 December 2006 to provide universal access to all countries and all relevant international and regional organizations to all types of space-based information to support the full disaster management cycle by being a gateway to space information for disaster management support, serving as a bridge to connect the disaster management and space communities and being a facilitator of capacity-building and institutional strengthening, in particular for developing countries. The UN-SPIDER programme is achieving this mission by focusing on being a gateway to space information for disaster management support, by serving as a bridge to connect the disaster management and space communities and by being a facilitator of capacity-building and institutional strengthening, in particular for developing countries.

Major accomplishments achieved in 2009 include the provision of technical advisory support to 13 Member States (including to the Philippines which suffered a sequence of disasters in 2009), formalizing cooperation agreements with regional support offices, establishing the SpaceAid framework to facilitate fast and efficient access to space-based information to support emergency response and early recovery, the launching of the beta version of the knowledge portal (<http://www.un-spider.org>), and the organization of international and

regional workshops and expert meetings. During the year, the Programme conducted Technical Advisory Missions to Namibia, Togo, Ecuador, Fiji, and Jamaica.

In 2010, accomplishments included the provision of technical advisory support to additional Member States, including Haiti, Chile, Guatemala, Pakistan, Philippines, Burkina Faso, and other countries which experienced disasters of various kinds. In addition, the Programme conducted Technical Advisory Missions to the Dominican Republic, Maldives, and Guatemala.

The General Assembly agreed that UN-SPIDER should work closely with regional and national centres of expertise in the use of space technology in disaster management to form a network of regional support offices for implementing the activities of UN-SPIDER in their respective regions in a coordinated manner. In 2009, the Office for Outer Space Affairs signed cooperation agreements, formalizing Regional Support Offices with Algeria, Islamic Republic of Iran, Nigeria, Romania, and with the Asian Disaster Reduction Center (ADRC). The Governments of Pakistan, the Philippines, South Africa, and Ukraine as well as CATHALAC, a leading regional organization in Central America, have also offered to host Regional Support Offices.

The partnership with the Asian Disaster Reduction Center is particularly important because of the leading role that this regional organization has in the implementation of Sentinel Asia. Together the Office for Outer Space Affairs and the Asian Disaster Reduction Center will ensure that countries within the Asia and the Pacific region can benefit from this cutting edge opportunity.

On the 10th of November of 2010, the People's Republic of China and the Director of UNOOSA formally inaugurated the Beijing Office of UN-SPIDER, which will contribute to the conduction of a variety of activities that the programme needs to conduct to achieve its goals.

For decisions at the global level to be effective, there is a need to build up national capacities, transform them into regional coordination efforts, and seek common grounds between different parts of the World through inter-regional cooperation.

I'm convinced that a direct exchange of information between the representatives of different regional organizations during their regular meetings will help to improve the worldwide cooperation, to better understand the role of different regional mechanisms in providing platforms for enhanced coordination and cooperation between space-faring nations and emerging space nations and in establishing partnerships between users and providers of space-based services in addressing climate change. I was very pleased to see Dr. Yasushi Horikawa, next COPUOS chairman, addressing the 6<sup>th</sup> Space Conference of Americas in Mexico, a few days ago, with significant elements not only about JAXA but also about the work and results of APRSAF.

I encourage the member states involved in the works of this Forum, members of COPUOS, to underline during the COPUOS Subcommittees at their meetings in 2011, as well as at the COPUOS meeting in June 2011, their substantial contributions to the development of space activities and applications in the Asian Region, as well as the promotion of inter-regional cooperation.

Thank you for your attention.