



# General Assembly

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## Committee on the Peaceful Uses of Outer Space

### International cooperation in the peaceful uses of outer space: activities of Member States

Note by the Secretariat

Addendum

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## II. Replies received from Member States

### China

[Original: Chinese]

[21 December 2011]

China has always maintained that outer space is the common heritage of humankind, has supported activities for the peaceful uses of outer space and has continued to contribute to human space endeavour by engaging in active exploration and use of outer space. In 2011, China continued its programme of development in the three major areas of space technology, the uses of space and applications of space science. It actively conducted research on space debris and other significant issues and engaged in highly productive international exchanges and cooperation in the areas of disaster mitigation and prevention, space science and technology, and launch services.

### Space technology

As at the end of November 2011, China had conducted 17 rocket launches (one of which failed), sending into outer space 19 space vehicles, including communication, navigation and remote-sensing satellites, satellites equipped for scientific experiments and unmanned spacecraft and space modules.

On 1 April, the Chang'e 2 lunar probe reached the end of its life. Since it was in good condition, it was maintained in operation for continued lunar mapping and other research, completing a set of images of the North Pole and South Pole of the Moon and high-resolution imaging of the Hongwan (Bay of Rainbows) region. On 1 September, Chang'e 2 entered successfully into circular orbit at Lagrangian point L2, approximately 1.7 million kilometres from Earth.

On 29 September and 1 November, space module Tiangong 1 and Spaceship Shenzhou 8 were successively launched into orbit. The two spacecraft conducted two successful dockings. On 17 November, Shenzhou 8 returned successfully to Earth. The success of this experiment was another major breakthrough by China in the technology of manned space flight.

Currently, China is building a new-generation Earth observation system, with the focus on developing an Earth observing platform based on high-resolution satellites, stratosphere airships and aerial remote sensing systems, the aim being to develop the capability for 24-hour and all-weather collection of Earth observation data and their application, and to build up a space data industry chain by developing the system of surface support and operation.

### Space applications

China has applied space technology widely to meteorology, oceanology, disaster prevention and mitigation, environment monitoring and navigation, with

significant results for the development of the national economy, promoting scientific and technological progress, and meeting the needs of the population.

China is among a number of countries that possess both polar orbit and geostationary meteorological satellites. In 2011, the Chinese satellite FengYun 3B formally entered into service and achieved, together with satellite FengYun 3A, meteorological monitoring on a two-satellite monitoring network made up of AM and PM satellites in polar orbit. FengYun satellites currently form an ideal platform for space meteorological monitoring. Both FengYun 1 and FengYun 2 meteorological satellites have been included in the range of meteorological satellites deployed for international operations by the World Meteorological Organization.

In 2011, China's small satellite constellation for environment and disaster monitoring and forecasting played an active part in the national disaster control system. China dealt successfully with numerous major natural disasters by making use of the data from both Chinese and foreign remote sensing satellites and, as part of international cooperation, provided data and services from the small satellites for environment and disaster monitoring and forecasting to a number of countries affected by disasters such as the major earthquake in Japan, the drought in the Horn of Africa, the earthquake in Turkey and the flooding in Pakistan. On 1 April 2011, the receiving station in Thailand for Small Satellite A for environment and disaster monitoring and forecasting, constructed by the China Centre for Resources Satellite Data and Applications, was formally handed over to Thailand. The receiving station assisted in monitoring the flooding in Thailand.

China has made progress in the application of ocean satellites. The successful launch of the satellite Ocean 2 will provide monitoring data for various oceanological research projects and will also monitor oil spills using remote imaging by the satellite, and thus provide services to support the handling of oil spill emergencies.

China has completed the construction of its environmental satellite application system, which consists of nine subsystems, applying environmental remote sensing in a phased manner to environmental monitoring and inspection, protection of the ecosystem, handling of environmental emergencies, assessment of films and images of the environment and other important tasks.

## **Space science**

Since its successful entry into circular orbit at Lagrangian Point L2, Chang'e 2 has been engaged in long-term scientific exploration. The Hard X-ray Modulated Telescope (HXMT) project has been formally started with the aim of studying the nature of the black hole, the rules of physics under extreme conditions and other highly topical scientific issues.

The International Space Weather Meridian Circle Programme is based on the Meridian Project. It will carry out joint observation as a common scientific endeavour by coordinating global joint observation of space weather and joint research programmes, and will supply to space weather users worldwide uninterrupted and relatively comprehensive data obtained from observation on Earth. A cooperation agreement for the project has been signed with Brazil, Canada,

the Russian Federation and the United States of America. It has also been included in the International Space Weather Initiative, led by the United Nations. In May 2011, the Meridian Project's first rocket for space exploration was successfully launched from Hainan province of China.

## **Space debris**

In 2011, China achieved progress in a number of research and development ventures in the areas of space debris monitoring and early warning, space vehicle protection and space debris mitigation, and gained experience in such areas as the safeguarding of space activities and advancement of international cooperation related to space debris. China has actively promoted implementation of the interim measures for space debris mitigation and protection management, and actively implemented the relevant international obligations. China has also taken an active part in organizing and contributing to the work of the Inter-Agency Space Debris Coordination Committee (IADC). A Chinese scientist was appointed Chairman of the Working Group on Environment and Data Base. Under his leadership, a number of research projects were planned and started. When the American satellite Upper Atmosphere Research Satellite (UARS) and the German Roentgen satellite (ROSAT) fell to Earth, China also participated in the joint monitoring organized by IADC.

## **International exchange and cooperation**

In 2011, China took an active part in bilateral space cooperation projects with a large number of countries and engaged in multilateral exchange and cooperation through the Committee on the Peaceful Uses of Outer Space and other major international organizations in the area of space activities.

In November 2011, the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) held the first United Nations International Conference on Space-based Technologies for Disaster Risk Management: Best Practices for Risk Reduction and Rapid Response Mapping. The Conference received strong support from all the competent authorities, including the China National Space Administration.

In response to the International Space Weather Initiative, China held the second International Conference on Storms, Substorms and Space Weather, and the fourth scientific symposium on the international programme of coexistence with the Sun.

As a member of the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (also called the International Charter on Space and Major Disasters), China sends representatives on week-long duty every two months to provide emergency relief and has contributed to achieving the Charter's aims.

## Thailand\*

[Original: English]  
[10 January 2012]

The year 2011 has been one of the most successful years for Thailand in the area of space technology and its applications. Thai delegations participated actively in many international forums. Thailand hosted the fourth meeting of the Board of Directors of the Sirindhorn International Center for Geo-Informatics in Phuket, on 4 and 5 April 2011, which brought together participants from Wuhan University, China, and the Ministry of Science and Technology of Thailand. Thailand also hosted the meeting of the Committee on Science and Technology of the Association of Southeast Asian Nations (ASEAN) prior to the Sixth Informal ASEAN Ministerial Meeting on Science and Technology, held in Krabi, on 17 December 2010. The Meeting adopted a report and an outcome to be known as the Krabi Initiative, with the main theme “Science, technology and innovation for a competitive, sustainable and inclusive ASEAN”. Consistent with the efforts to achieve the goal of establishing the ASEAN Community by 2015, the Meeting agreed that the Krabi Initiative, which identifies eight thematic tracks as key areas, was to be pursued. Thailand also proposed that the ASEAN Earth observation satellite be part of the Initiative for ASEAN countries.

Thailand is well aware that natural disasters have been occurring more frequently in South-East Asia in recent times. The severity of those events may be due in part to natural causes or cycles, but their disastrous results can also be attributed to inadequate planning and unpreparedness. Earth observation systems, comprising optical and radar satellites, analytical models and information communication networks, proved to be highly valuable technology during major flood events in Thailand in 2006, 2010 and most recently in 2011 in terms of prediction, monitoring and assessment of inundated areas and damage as well as relief and rehabilitation.

The ASEAN region still needs its own satellite and observation system jointly owned or operated by member countries. Joint operation of a satellite under joint ownership, whereby countries share the cost of the entire satellite, or in the form of a joint mission in which countries share the cost of the basic platform while each country is responsible for its own on-board sensors, are possible solutions.

Through its Geo-Informatics and Space Technology Development Agency Thailand hopes that the ASEAN Earth observation satellite may not only serve the region but may also act as the regional node to support other developing regions that share similar constraints in space-based technology.

Furthermore, a number of workshops and training courses in space technology and its applications, in particular on remote sensing and on geographic information systems, were organized in Thailand in order to broaden and strengthen the use of those technologies in various fields. For the year 2012, Thailand plans to organize TechnoMart-InnoMart 2012 in Bangkok from 5 to 13 January 2012, in cooperation

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\* The complete Thailand country report on space activities in 2011 will be made available as a conference room paper during the forty-ninth session of the Scientific and Technical Subcommittee.

with the National Aeronautics and Space Administration of the United States of America and the Japan Aerospace Exploration Agency.

Thailand uses space technology to decrease coastal erosion and land subsidence in the country. Many projects are being conducted and integrated throughout various agencies concerned with compiling and using low- and high-resolution satellite imagery from the following satellites: IKONOS, QuickBird, SPOT-5, the Land Remote Sensing Satellite (Landsat) 5, Terra/ASTER and Terra/MODIS, along with the National Oceanic and Atmospheric Administration of the United States. Thailand is appreciative of the services of these providers.

Satellite imagery and interpretation maps are being produced in both digital and hard-copy form. It is hoped that the outcomes will be well organized and pave the way to all necessary measures to handle not only disasters but also for the well-being of all humankind. Space technology and its applications will play a vital role in this endeavour.

Thailand, as one of the member States of the Committee on the Peaceful Uses of Outer Space, aspires to see space technology and its applications continue to be used for the benefit of all humankind.

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