8 April 2013

English only

Committee on the Peaceful Uses of Outer Space
Legal Subcommittee
Fifty-second session
Vienna, 8-19 April 2013
Item 12 of the provisional agenda*
Review of international mechanisms for cooperation in the peaceful exploration and use of outer space

Review of international mechanisms for cooperation in the peaceful exploration and use of outer space: information received from Member States

I. Introduction

1. At its fifty-first session, in 2012, the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space agreed to include "Review of international mechanisms for cooperation in the peaceful exploration and use of outer space" as an item under a five-year workplan. In accordance with the recommendation of the Subcommittee (A/AC.105/1003, para. 179), Member States of the Committee on the Peaceful Uses of Outer Space were invited to provide information on the range of bilateral and multilateral mechanisms they utilize for space cooperation.

2. The present document has been prepared by the Secretariat on the basis of a reply received from the following Member State: United States of America.

* A/AC.105/C.2/L.288.

V.13-82437 (E)

II. Information received from Member States

United States

[Original: English]
[5 April 2013]

Summary of International Cooperative Mechanisms Utilized by the United States in the Peaceful Exploration and Use of Outer Space

The United States submits this summary of the range of bilateral and multilateral mechanisms it utilizes for space cooperation in response to the request by the Office of Outer Space Affairs (OOSA/2012/12) and in connection with Agenda Item 12 of the 52nd Session of the Legal Subcommittee: Review of International Mechanisms for Cooperation in the Peaceful Exploration and Use of Outer Space.

This summary is intended to show the breadth and diversity of the cooperative mechanisms utilized by the United States. The specific mechanisms referenced within are merely illustrative; this is not an exhaustive list.

A. Multilateral and Bilateral Legally Binding Agreements

(a) International Space Station (ISS) Intergovernmental Agreement, Memoranda of Understanding, and subsidiary agreements ("Implementing Arrangements")

The International Space Station (ISS) Program's greatest accomplishment is as much a human achievement as it is a technological one - how best to plan, coordinate, and monitor the varied activities of the Program's many organizations. The ISS is the most politically and operationally complex space exploration program ever undertaken.

The 1998 Intergovernmental Agreement on Space Station Cooperation (IGA) was signed by the United States, Russia, Japan, Canada, and participating Member States of the European Space Agency (Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland, and the United Kingdom). This Agreement is the foundational document governing the ISS. It established the essential governmental level of commitment to the ISS. It also created binding international obligations with respect to key government-level obligations, such as a cross-waiver of liability, protection of sensitive data and hardware, and the concept that each Partner would seek to minimize the exchange of funds in implementation of cooperation.

In 1998 NASA also entered into Memoranda of Understanding (MOUs) with the European Space Agency (ESA), the Canadian Space Agency (CSA), the Russian Space Agency and the Government of Japan. These MOUs establish a working basis for cooperation at the agency level: developing in detail the responsibilities of the agencies and creating a number of governing boards at the operational level.

Assembly of the ISS was the primary focus of the program through 2011. Utilization of the ISS is now fully underway. To date, experiments by all of the partner agencies number 1400, in areas such as biology and biotechnology, earth and space science, educational activities, human research, physical science, and technology. A high

priority for all of the partner agencies is ISS utilization in support of human and robotic exploration. This utilization falls into four categories: exploration technology demonstrations, demonstrating maturity and readiness of critical exploration systems, human health management for long-duration space travel, and operations simulations and techniques for missions beyond low-earth orbit. To date, 67 countries have participated in ISS utilization.

(b) Agreement on the Promotion, Provision and Use of Galileo and GPS Satellite-Based Navigation systems and Related Applications

In 2004, the United States and the Member States of the European Union concluded the *Agreement on the Promotion, Provision, and Use of Galileo and GPS Satellite-Based Navigation Systems and Related Applications*.

Recognizing the added benefit to civil and commercial users of compatibility and interoperability of the two systems, the Agreement lays the groundwork for cooperation to, inter alia, achieve radio frequency compatibility and improve signal availability, reliability, and interoperability at the non-military user-level. The Agreement establishes Working Groups through which representatives of the United States and the European Union and its Member States have shared technical analyses and information. The increased availability, precision, and robustness that will be provided by this coordination lays the foundation for a new generation of satellite-based applications and services, promoting research, development, and investment that will benefit business, science, governments, and recreational users alike.

(c) COSPAS-SARSAT Programme Agreement

The COSPAS-SARSAT System Programme provides an international humanitarian search and rescue system that uses satellites to locate distress signals from emergency beacons carried by ships, aircraft, or individuals and to communicate location information to search and rescue authorities. The system consists of a network of satellites, ground stations, mission control centers, and rescue coordination centers. COSPAS-SARSAT was initiated in 1979 by the United States, France, Canada, and the former Soviet Union and was fully operational in 1985. The SARSAT Program — the U.S. contribution to the international system — is implemented through a collaboration among NASA, the U.S. NOAA, US Coast Guard, the U.S. Air Force and the National Search and Rescue Committee, with National Oceanic and Atmospheric Administration (NOAA) serving as the lead U.S. agency in the international network. In 1988 the participating governments concluded a government-level international agreement — The International COSPAS-SARSAT Programme Agreement — replacing the agency-level memoranda of understanding.

(d) Bilateral Framework Agreements for Civil Space Cooperation

Over the past fifteen years, the U.S. Government has used bilateral Framework Agreements, binding under international law, to facilitate cooperation in the civil uses of space, and, when possible, aeronautics. The United States has concluded such agreements with, for example, Brazil, Canada, France and India. These agreements establish a legal framework to govern the terms and conditions for future cooperation in a broad range of areas. Cooperation in earth science,

observation and monitoring, space science, human exploration, and space operations is typically covered and the possibility is left open for the parties to agree later to additional areas of cooperation. Specific cooperative activities are then undertaken through "Implementing Agreements" that establish the responsibilities of each of the Parties with respect to such cooperation.

Key legal provisions in Framework Agreements include:

- A cross-waiver of liability: This article covers the fundamental principle that each Party assumes its own risks inherent in the cooperative activity. It contains a mutual promise by both Parties not to sue each other for losses caused by any of the activities that take place under the agreement, subject to a few exceptions.
- The transfer of sensitive goods and data ("technical data"): This article provides that the Parties are only obliged to transfer those goods and technical data necessary to fulfil their respective responsibilities under the agreement and that all activities under the agreement will be carried out in accordance with each Party's national laws and regulations pertaining to export control. The article further provides that such goods and data will be properly marked and will be returned or destroyed at the conclusion of activities under the agreement.
- Consultations and dispute resolution: This provision explicitly sets forth a process for resolution of issues starting at the technical level and, if necessary, by more senior officials. These provisions do not include mechanisms for arbitration or other forms of binding dispute resolution.

Resolving in advance all of the legal issues that often arise in negotiating an agreement for cooperation in outer space allows for the more rapid conclusion of Implementing Agreements for specific missions and saves significant time and resources, thereby allowing space agencies to focus on performing their underlying scientific and technical missions more efficiently and effectively.

(e) Bilateral Agreements for Specific Cooperative Endeavours

The following represent a small selection of the numerous bilateral agreements NASA, NOAA, and U.S. Geological Survey (USGS) have concluded to facilitate specific cooperative endeavours. Such agreements typically define objectives and parameters of cooperation and the specific contributions of each Party. Some are concluded as implementing arrangements subject to a Framework Agreement, while many are concluded as freestanding agreements.

1. Mars Science Laboratory/Curiosity

With its rover named Curiosity, the Mars Science Laboratory mission is part of a long-term effort of robotic exploration of the red planet. Curiosity was designed to assess whether Mars ever had an environment able to support small life forms called microbes. In other words, its mission is to determine the planet's "habitability." The Mars Science Laboratory (MSL) arrived at Mars on August 6, 2012. Since the Mars Science Laboratory arrived at Mars on August 6, 2012, it has found conditions once suited for ancient life on Mars, including evidence of water-bearing minerals in rocks, clay minerals, and an old streambed on the Martian surface.

The Mars Science Laboratory relies on innovative technologies, especially for landing. Also of critical importance is that Curiosity carries the biggest, most advanced suite of instruments for scientific studies ever sent to the Martian surface. The rover will analyse samples scooped from the soil and drilled from rocks. The record of the planet's climate and geology is essentially "written in the rocks and soil" - in their formation, structure, and chemical composition. The rover's on board laboratory will study rocks, soils, and the local geologic setting in order to detect chemical building blocks of life (e.g., forms of carbon) on Mars and will assess what the Martian environment was like in the past.

The Mars Science Laboratory includes international involvement from 13 countries with five scientific instrument contributions - from Canada, France, Germany, Russia, and Spain. All of the scientific instrument cooperation (except the cooperation with the Canadian Space Agency (CSA) and with the French Space Agency (CNES)) was done pursuant to bilateral cooperative agreements binding under international law that include the purpose of the agreement and the responsibilities of each Party. These agreements also include key legal provisions such as rights in resulting data, a provision to ensure that each party commits to funding its own responsibilities, liability and risk of loss, registration under the United Nations Convention on Registration of Objects Launched into Outer Space, transfer of goods and sensitive ("technical") data, intellectual property rights, and release of results and public information. The cooperation with CSA and CNES was done pursuant to an Implementing Agreement under the U.S.-Canada Framework Agreement and the U.S.-France Framework Agreement respectively.

For more information about the MSL mission, please see the following URL: http://mars.jpl.nasa.gov/msl/.

2. The James Webb Space Telescope

The James Webb Space Telescope (JWST) will be a large infrared telescope with a 6.5-meter primary mirror, planned for launch in 2018. JWST will enable the study of every phase in the history of our universe. JWST will find the first galaxies that formed in the early Universe, connecting the Big Bang to our own Milky Way Galaxy. JWST will peer through dusty clouds to see stars forming planetary systems and connect the Milky Way to our own Solar System. JWST will look for the formation of solar systems capable of supporting life on Earth-like planets and the evolution of our own solar system. JWST's instruments will be designed to work primarily in the infrared range of the electromagnetic spectrum, with some capability in the visible range.

JWST is an international collaboration among NASA, ESA, and CSA. ESA and CSA are both providing two science instruments for the telescope and ESA is providing the launch vehicle. This collaboration is done pursuant to bilateral agreements that include the responsibilities of each party and legal provisions similar to those outlined in the description of the bilateral agreements for the MSL/Curiosity mission described above.

For more information about JWST, please see the following URL: http://jwst.gsfc.nasa.gov/.

3. Global Learning and Observations to Benefit The Environment

The Global Learning and Observations to Benefit the Environment (GLOBE) program is a multilateral program. Bilateral agreements establish partnerships between the United States and the international partners. NASA leads the GLOBE program in close partnership with the National Science Foundation and the National Oceanic and Atmospheric Administration. The GLOBE program is fully supported by the U.S. Department of State.

GLOBE is a hands-on, primary and secondary school-based science and education program uniting students, teachers, scientists, and community members around the world in studying and conducting research about the Earth's environment, connecting the local perspective to vantage view from space. International partners sponsor GLOBE activities in their countries, designing and funding their own implementation strategies to be compatible with their national and regional educational priorities.

There are 112 participating countries in the GLOBE program. Since its inception in 1995, more than 1.5 million students in more than 24,000 schools have participated in the program. GLOBE students take important environmental measurements focusing on atmosphere and climate, hydrology, soils, land cover biology, and phenology. This data is freely available for use by students and scientists worldwide. By involving students in scientific data collection and research, including taking measurements, analysing data, and participating in research collaborations with other students, GLOBE provides students with a full and practical understanding of the scientific process.

For more information about GLOBE, please see the following URL: www.globe.gov.

B. Legally Non-Binding Principles and Technical Guidelines

(a) United Nations Principles and Technical Guidelines

The non-binding principles and technical guidelines developed in COPUOS and endorsed by the General Assembly need no introduction here. The United States was actively involved in the creation and promotion of many of these important mechanisms for international cooperation for addressing major opportunities and challenges in the peaceful use and exploration of outer space.

(b) COSPAR: Committee on Space Research Planetary Protection Policy

COSPAR was established in 1958 by the International Council of Scientific Unions (ICSU), a nongovernmental organization made up of national scientific institutions. COSPAR provides the scientific community with a platform to promote, on an international level, scientific research in space, with emphasis on the exchange of results, information and opinions, and to provide a forum, open to all scientists, for the discussion of problems that may affect scientific space research. These objectives are achieved through the organization of scientific assemblies, publications and other means. NASA and other U.S. Government experts participate actively in the work of COSPAR.

For more information on COSPAR, please see the following URL: http://cosparhq.cnes.fr/About/about.htm.

C. Multilateral Coordination Mechanisms

The United States participates in a number of multilateral mechanisms through which space system operators coordinate - generally on a voluntary basis — to, inter alia, develop and enhance applications of space systems for the benefit of the environment, human security, welfare, and development.

(a) The Committee on Earth Observation Satellites (CEOS)

The Committee on Earth Observation Satellites was established in 1984 under the auspices of the G-7 Economic Summit of Industrialized Nations, and is the focal point for international coordination of space-based Earth observation activities. Its goal is to optimize the benefits of Earth observation through cooperation of members in mission planning and in development of compatible data products, formats, services, applications, and policies. CEOS operates through best efforts of Members and Associates via voluntary contributions. Currently, CEOS has 30 Members (Space Agencies) and 23 Associates (United Nations Agencies, Phase A programs, or supporting ground facility programs).

CEOS currently focuses on key areas of climate, deforestation/forest carbon, agriculture/food security, disasters, water, and oceans to optimize global societal benefit through cooperation of members in mission planning and in the development of compatible data products, formats, services, applications, and policies.

NASA, USGS, and NOAA participate actively in the work of CEOS. NASA presently chairs the Strategic Implementation Team (SIT) for a two-year term ending in November 2013. The SIT is tasked with leading CEOS strategic direction and implementation in relation to GEO and other stakeholders, including the U.N. System and the World Bank Group. NASA, NOAA, and USGS lead various CEOS standing and ad hoc working groups, and NOAA and USGS have supplied the last two CEOS Executive Officers.

For more information on CEOS, please see the following URL: www.ceos.org/.

(b) The Group on Earth Observation (GEO)

The Group on Earth Observations is a voluntary partnership of governments and international organizations that provide a framework to promote global sharing of Earth observation data, develop new applications projects, and coordinate Earth observation strategies and investments. GEO was established by a series of three ministerial-level summits. GEO includes more than 75 member countries of the European Commission, and 51 participating organisations — including CEOS — that are working together to build a Global Earth Observation System of Systems (GEOSS) by 2015. GEOSS will provide timely and reliable resources to address the needs of diverse user communities — from researchers to policy-makers — in a broad range of societal benefit areas.

(c) The Coordination Group for Meteorological Satellites (CGMS)

The Coordination Group for Meteorological Satellites was formed in 1972 and provides an international forum for the exchange of technical information on geostationary and polar-orbiting meteorological satellites. CGMS now numbers 15 space agencies and focuses on meeting observational weather and climate requirements through contributions from operational and research agencies. Primary objectives include to 1) provide a forum for technical exchange on meteorological satellite systems; 2) coordinate missions, including establishing complementary orbits, sensors, data formats, and downlink frequencies; and 3) encourage mutual backup arrangements and contingency planning.

For more information about CGMS please see the following URL: www.cgms-info.org/.

(d) World Meteorological Organization (WMO)

With 188 member states and territories, the World Meteorological Organization is a specialized agency of the United Nations focused on the Earth's atmosphere, its interaction with the oceans, the climate it produces, and the resulting distribution of water resources. The WMO Space Program coordinates environmental satellite matters and activities throughout all WMO Programs and provides guidance on the potential of remote-sensing techniques in meteorology, hydrology, and related disciplines and applications. NOAA maintains an active relationship with the WMO Space Program Office and provides advice and guidance on policy-related matters, including the optimization of international space-based earth observing capabilities.

For more information about the WMO please see the following URL: www.wmo.int/pages/index_en.html.

(e) International Charter on Space and Major Disasters

The Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (Disasters Charter) is a cooperative mechanism for space data acquisition and delivery in the event of natural or technological disasters. The Disasters Charter is a legally non-binding arrangement. It was proposed by the European Space Agency (ESA) and the Centre National d'Etudes Spatiales (CNES) at the UNISPACE III conference in July 1999, and today, with the participation of government agencies from 11 States and intergovernmental organizations such as ESA and the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT), it provides rapid access to satellite data for the benefit of disaster management authorities during the response phase of the disaster cycle.

The Disasters Charter is uniquely able to mobilize the resources of its members in response to an emergency call through a single access point that operates 24 hours a day, 7 days a week, free of charge to the user.

The United States participates in the Disasters Charter through NOAA, NASA, and USGS. Through USGS, U.S. commercial operators can provide high-resolution optical imagery to support certain Charter activations.

For more information about the Disasters Charter, please see the following URL: www.disasterscharter.org/.

(f) International Space Exploration Coordination Group (ISECG)

In 2006, 14 space agencies began a series of discussions on global interests in space exploration that culminated in an articulated vision of peaceful robotic and human space exploration called "The Global Exploration Strategy: The Framework for Coordination." The release of this document in 2007 inspired the establishment of ISECG, a voluntary, non-binding international coordination mechanism through which participating agencies exchange information regarding interests, objectives, and plans in space exploration. In 2011, the ISECG released the first iteration of "The Global Exploration Roadmap," which advances the Global Exploration Strategy by articulating the perspectives of participating agencies on exploration goals and objectives, mission scenarios, and coordination of exploration preparatory activities.

For more information on ISECG, please see the following URL: www.globalspaceexploration.org/.

(g) International Committee on Global Navigation Satellite Systems and Providers' Forum

The International Committee on Global Navigation Satellite Systems (ICG) is an informal body established in December 2005 as part of the United Nations system to promote cooperation on matters related to civil satellite-based positioning, navigation, timing, and value-added services. Members include States and international organizations with responsibility for GNSS systems. Associate members and observers provide advice, monitor the committee, and participate in working groups. The institutional arrangements consist of a chair and plenary, a secretariat, and working groups. The plenary meets at least once a year. Decisions are made by consensus of the members. The decision makers are the representatives of the member agencies.

The Providers' Forum is a subset of the ICG that provides a means to promote discussion and detailed exchanges among system providers. The forum is open to Members of the United Nations that are or will be GNSS providers. Additional members are added by consensus. A chair is selected by consensus for each successive meeting. Secretariat functions are performed by the United Nations Office for Outer Space Affairs. The Providers' Forum meets once a year in conjunction with the ICG. Recommendations are made by consensus of the member States.

D. International Fora

(a) International Astronautical Federation

The International Astronautical Federation (IAF) was established in 1951 with the mission of promoting international cooperation in all space-related activities. Specifically, the IAF encourages dialogue between scientists through its many international platforms. The Federation has 246 members, including space agencies, companies, societies, associations, and institutes across 62 countries.

The IAF is a non-governmental organization, and its governance decisions are made by its General Assembly. The IAF General Assembly (GA) is the main governing

body of the IAF and is composed of delegates of each member organization. The GA convenes every year during the International Astronautical Congress (IAC). The GA votes on all decisions that guide the IAF's conduct and activities, including the approval of new member organizations. Resolutions are adopted at the General Assembly where possible by consensus and, where not, by majority vote. Resolutions adopted by the General Assembly become IAF policy.

The International Astronautical Congress (IAC) is an annual meeting held by the International Astronautical Federation, the International Astronautical Association, and the International Institute of Space Law. The IAC serves as a unique platform to foster collaboration between experts from space agencies, industry, and research. This forum allows for cooperation between both established and emerging space nations alike. The IAC brings together space actors from every sector to collaborate and forge partnerships in a wide range of space topics.

(b) Space Conference of the Americas

The Space Conference of the Americas is a regional framework to enhance space education and economic development. United Nations General Assembly resolution 55/122 recognizes the importance of Space Conferences of the Americas for the region. The Space Conferences of the Americas aims to increase the space capacity and development in the region and reaffirms the commitment of the States of the American region in the exploration and peaceful uses of outer space.

In its resolution 57/116 of December 11, 2002, the General Assembly recognized the agreement reached at the Space Conferences of the Americas for the Latin American countries as a mechanism to promote cooperation and coordination in space activities in the region, noted with satisfaction the success of the Fourth Space Conference of the Americas, which had adopted the Declaration of Cartagena de Indias and the Plan of Action, and encouraged other regions to convene periodically regional conferences with a view to achieving convergence of positions on issues of common concern in the field of the peaceful uses of outer space among States Members of the United Nations.

On April 17, 2003, a Memorandum of Understanding on Cooperation between the United Nations Office for Outer Space Affairs and the Pro Tempore Secretariat of the Fourth Space Conference of the Americas was signed by the Foreign Minister of Colombia, Carolina Barco, and the Director-General of the United Nations Office at Vienna. In that Memorandum, the parties undertook to promote cooperation and the coordination of projects and programmes concerned with space applications in order to facilitate the work of the Pro Tempore Secretariat of the Fourth Space Conference of the Americas.

The Memorandum has facilitated the performance of the tasks assigned with regard to space technology and its potential benefits for environmental protection and prevention and early warning of natural disasters, and in the areas of space law and education, research, and the development of science, technology, and space applications. It has also served as an essential instrument for cooperation and the development of the topics involved.

In paragraph 21 of its resolution 59/116 of December 10, 2004, the General Assembly welcomed the memorandum of understanding between the Office for Outer Space Affairs of the Secretariat and the Pro Tempore Secretariat of the

Fourth Space Conference of the Americas, under which the parties demonstrated their intention to collaborate in promoting and implementing joint activities, and invited the Pro Tempore Secretariat to inform the Committee of the work accomplished.