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**Committee on the Peaceful
Uses of Outer Space**
Scientific and Technical Subcommittee
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Draft report

Addendum

I. Introduction

C. General statements

1. Statements were made by representatives of the following member States during the general exchange of views: Algeria, Argentina, Austria, Burkina Faso, Canada, China, Colombia, Cuba, Czech Republic, Ecuador, France, Germany, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Italy, Japan, Kenya, Libyan Arab Jamahiriya, Malaysia, Mexico, Nigeria, Pakistan, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Saudi Arabia, South Africa, Switzerland, Syrian Arab Republic, Thailand, Tunisia, Ukraine, United Kingdom, United States and Venezuela (Bolivarian Republic of). Statements were also made by the representative of the Islamic Republic of Iran on behalf of the Group of 77 and China, and by the representative of Colombia on behalf of the Group of Latin American and Caribbean States. A general statement was also made by the observer for Zimbabwe. The observers for ITU and WMO also made general statements. General statements were also made by the observers for APSCO, ESPI, IAF, IAU, ISPRS, ISU, SGAC and SWF. A general statement was also made by the observer for the Association of Remote Sensing Centres in the Arab World.
2. The Subcommittee welcomed Tunisia as the seventieth member of the Committee.
3. The Subcommittee welcomed the International Association for the Advancement of Space Safety (IAASS) as the newest permanent observer of the Committee.



4. The Subcommittee conveyed its condolences to the people of Australia, Brazil, Chile, Colombia, Haiti, Mexico, Pakistan, the Russian Federation, Sri Lanka and Venezuela (Bolivarian Republic of) for the loss of lives and infrastructure caused by natural disasters that had occurred in those countries. The Subcommittee noted that loss of life and property could be reduced if better information were 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.

5. At the 738th meeting, the Chair made a statement outlining the work of the Subcommittee at its current session and reviewing the global space activities of the previous year, including important advances that had been made as a result of international cooperation. The Chair stressed the need for better coordination between the space community and the disaster management community.

6. Also at the 738th meeting, the Director of the Office for Outer Space Affairs of the Secretariat made a statement reviewing the work programme of the Office and the need for additional resources to be able to successfully perform the envisaged responsibilities for the biennium 2012-2013.

7. The Subcommittee noted the remarkable space-related events in 2011, which included the fiftieth anniversary of the Committee on the Peaceful Uses of Outer Space and the fiftieth anniversary of human space flight, and welcomed the opportunity that those anniversaries presented to increase awareness of the relevance and importance of space applications for the betterment of the conditions of human life. In that connection, the Subcommittee noted the information provided by the Office for Outer Space Affairs on its plans to organize, jointly with member States, a number of events to celebrate those important anniversaries.

8. The Subcommittee congratulated the Governments of Mexico and South Africa on the establishment of their national space agencies, the Government of France on the fiftieth anniversary of the Centre national d'études spatiales and the Government of Romania on the country's accession to the Convention for the establishment of a European Space Agency.¹

9. Some delegations reiterated their commitment to the peaceful use and exploration of outer space and emphasized the following principles: equal and non-discriminatory access to outer space and equal conditions for all States, irrespective of their level of scientific, technical and economic development; non-appropriation of outer space, including the Moon and other celestial bodies, by claim of sovereignty, use, occupation or any other means; non-militarization of outer space and its strict exploitation for the improvement of living conditions and peace on the planet; and regional cooperation to promote space activities as established by the General Assembly and other international forums.

10. Some delegations expressed the view that, given the impact of space activities on human life and the environment, there should be greater coordination and interaction between the Scientific and Technical Subcommittee and the Legal

¹ United Nations, *Treaty Series*, vol. 1297, No. 21524.

Subcommittee in order to promote the establishment of binding international norms addressing critical issues in the use and exploration of outer space.

11. Some delegations expressed the view that developing countries should benefit from space technologies, in particular to support their social and economic development, that it was necessary to promote greater North-South and South-South cooperation to facilitate the transfer of technology among States and that training of scientists in developing countries was crucial for the free flow of scientific information and data exchange.

12. The Subcommittee heard the following scientific and technical presentations:

- (a) “Summary of APRSAF-17: the role of space technology and industry in addressing climate change”, by the representative of Japan;
- (b) “Enhancing global cooperation in satellite-based emergency mapping”, by the representative of Germany;
- (c) “Space activities in Tunisia in 2010”, by the representative of Tunisia;
- (d) “Activities of the Space Foundation”, by the representative of the United States;
- (e) “Terrestrial benefits of research on extraterrestrial constructions”, by the representative of Turkey;
- (f) “ISPRS: 100th year of serving society with information from imagery”, by the observer for ISPRS.

13. The Subcommittee also watched lunch-time video presentations entitled “On APRSAF” and “Mission of ‘Hayabusa’”, both by the delegation of Japan, and “From Sputnik to today to tomorrow” by the observer for SGAC.

14. The Subcommittee expressed its gratitude to the Governments of Italy and Japan and ESPI, as well as to the European Union, for organizing scientific and technical events on the margins of the current session of the Subcommittee.

III. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)

15. In accordance with General Assembly resolution 65/97, the Subcommittee considered agenda item 5, “Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)”.

16. The representatives of Canada, Japan, Nigeria and the United States made statements under agenda item 5. During the general exchange of views, statements relating to the item were made by representatives of other member States.

17. The Subcommittee heard a presentation entitled “Recommendations from the Space Generation Congress 2010: input from the next generation of space sector leaders on the development of space” by the observer for SGAC.

18. The Subcommittee reiterated its appreciation for the flexible approach adopted in implementing the recommendations of UNISPACE III. By making use of multi-year workplans and action teams, the Committee was able to address a wide range of issues, thereby enabling maximum implementation of those recommendations.
19. The Subcommittee noted with satisfaction that Member States continued to contribute to the implementation of the recommendations of UNISPACE III through national and regional activities and by supporting and participating in the programmes established in response to those recommendations.
20. The Subcommittee noted that the Action Team on Near-Earth Objects had held meetings during its forty-eighth session.
21. The Subcommittee noted with appreciation that the Action Team on Public Health, co-chaired by Canada and India, had submitted the final report of the Action Team (A/AC.105/C.1/L.305) for consideration by the Subcommittee at its current session and that the report included concrete findings on the use of telecommunications in the context of telehealth and of Earth observation applications in the context of tele-epidemiology, with an emphasis on improving public health and infectious disease management.
22. The Subcommittee agreed that the contribution of the Committee on the Peaceful Uses of Outer Space to the United Nations Conference on Sustainable Development, to be held in Rio de Janeiro, Brazil, in 2012, should focus on geospatial data for sustainable development and assess how that theme related to the main agenda of the Conference.
23. The Working Group of the Whole, reconvened in accordance with General Assembly resolution 65/97, also considered agenda item 5, "Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III)". At its [...] meeting, on [...] February, the Subcommittee endorsed the recommendations of the Working Group of the Whole concerning the implementation of the recommendations of UNISPACE III, contained in annex I to the present report.
24. The Subcommittee noted the plans to establish a regional centre for space science and technology education in Western Asia, affiliated to the United Nations, to be hosted by the General Organization for Remote Sensing of the Syrian Arab Republic as part of the Association of Remote Sensing Centres in the Arab World.

VI. Space-system-based disaster management support

25. In accordance with General Assembly resolution 65/97, the Subcommittee considered agenda item 8, "Space-system-based disaster management support".
26. The representatives of Austria, France, Germany, India, Indonesia, Italy, Japan, Nigeria, the Russian Federation, Ukraine, the United States and Venezuela (Bolivarian Republic of) made statements under agenda item 8. A statement was also made by the observer for SGAC. During the general exchange of views, statements related to the item were also made by representatives of other member States and by the representative of Colombia on behalf of the Group of Latin American and Caribbean States.

27. The Subcommittee heard the following scientific and technical presentations:
- (a) “Space technology applications for disaster reduction in China”, by the representative of China;
 - (b) “Reception, interpretation and utilization of satellite images received by UN-SPIDER during the earthquake and tsunami that affected Chile on 27 February 2010”, by the representative of Chile;
 - (c) “The tenth anniversary of the International Charter on Space and Major Disasters”, by the representative of the European Space Agency;
 - (d) “Four-dimensional Earth observation: space and time”, by the representative of Romania;
 - (e) “Satellite-based soil moisture information for flood risk assessment: the case of the 2010 Pakistan floods”, by the representative of Austria;
 - (f) “International Charter”, by the representative of the United States;
 - (g) “Institutional framework of project IGMASS: international global monitoring aerospace system”, by the representative of the Russian Federation;
 - (h) “Management of the 2010 floods and rains in Pakistan using satellite technology”, by the representative of Pakistan.
28. For its consideration of the item, the Subcommittee had before it the following:
- (a) Report on the activities carried out in 2010 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (A/AC.105/981);
 - (b) Report of the Secretariat on technical advisory support activities carried out in 2010 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (A/AC.105/985);
 - (c) Note by the Secretariat on the United Nations Platform for Space-based Information for Disaster Management and Emergency Response: proposed workplan for the biennium 2012-2013 (A/AC.105/C.1/2011/CRP.15);
 - (d) Report on coordination activities carried out by the United Nations Office for Outer Space Affairs with existing mechanisms and initiatives supporting emergency response activities with space-based information (A/AC.105/C.1/2011/CRP.16).
29. At the 746th meeting of the Subcommittee, the Programme Coordinator for the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) made a statement on the activities carried out in 2010, on the implementation of the activities planned for 2011 and on the proposed UN-SPIDER workplan for the biennium 2012-2013 (see A/AC.105/C.1/2011/CRP.15).
30. The Subcommittee noted with satisfaction the progress made with regard to the activities carried out in the framework of UN-SPIDER in 2010, including the support provided through the programme to the emergency efforts made in response to major disasters worldwide.

31. The Subcommittee also noted with satisfaction the formal inauguration of the UN-SPIDER Beijing office on 10 November 2010.

32. The Subcommittee noted with satisfaction the voluntary contributions that were being made available by Member States, including cash contributions from Austria, China and Germany, and encouraged Member States to provide, on a voluntary basis, all support necessary, including financial support, to UN-SPIDER to enable it to carry out its current workplan for the biennium 2010-2011.

33. The Subcommittee noted with appreciation that in 2010, the Office for Outer Space Affairs had signed cooperation agreements with five national and regional organizations to establish a regional support office, bringing the total of established regional support offices to 10. Currently, UN-SPIDER regional support offices are being hosted by six national organizations (the Algerian Space Agency, the Iranian Space Agency, the Nigerian National Space Research and Development Agency, the Pakistan Space and Upper Atmosphere Research Commission, the Romanian Space Agency and the National Space Agency of Ukraine) and by four regional organizations (the Asian Disaster Reduction Center, based in Kobe, Japan; the Regional Center for Mapping of Resources for Development, based in Nairobi; the University of the West Indies, based in St. Augustine, Trinidad and Tobago; and the Water Center for the Humid Tropics of Latin America and the Caribbean (CATHALAC), based in Panama City).

34. The Subcommittee welcomed the offers of Colombia, Indonesia and Turkey to host UN-SPIDER regional support offices.

35. The Subcommittee noted the activities of Member States that were contributing to increasing the availability and use of space-based solutions in support of disaster management, including the following: the Constellation of Small Satellites for Mediterranean Basin Observation (COSMO)-SkyMed operated by Italy; the Sentinel Asia project and the associated Wide-band InterNetworking Engineering Test and Demonstration Satellite; 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); the Mesoamerican Regional Visualization and Monitoring System (SERVIR); the Famine Early Warning System Network; GEONETCast, which is a global satellite-based data dissemination system; those activities falling within the framework of APRSAF; the Global Environmental Alert Service (GEAS) for dissemination of early warning of environmental hazards; and the Services and Applications for Emergency Response (SAFER) project being implemented in the framework of the Global Monitoring for Environment and Security (GMES) initiative in Europe.

36. The Subcommittee noted that, in accordance with paragraph 16 of the United Nations General Assembly resolution 65/97, the United Nations Office for Outer Space Affairs was ensuring coordination of the UN-SPIDER SpaceAid framework with mechanisms and initiatives that were making space-based information available to support responses to emergency events (see A/AC.105/C.1/2011/CRP.16).

37. The Subcommittee noted that the Office had organized an expert meeting on space-based technologies and emergency response, held on 9 February 2011, which was attended by representatives of the four leading mechanisms, namely, the

International Charter on Space and Major Disasters, Sentinel Asia, SAFER and SERVIR, as well as representatives from a number of service providers and the UN-SPIDER regional support offices. The Subcommittee also noted that those representatives agreed to further consider the possibility of establishing a working group, to be facilitated by the Office for Outer Space Affairs, in order to optimize collaboration and related communications during major disasters, and requested the Office to seek official confirmation from those mechanisms and service providers that they would participate in the proposed working group, inviting them to nominate representatives.

38. The Subcommittee noted that the existing United Nations Working Group on Emergency Telecommunications would, at its next meeting, review the possibility of establishing an emergency telecommunication charter, which would ensure access to telecommunication infrastructure to support the response to emergency events.

39. The view was expressed that the Committee on the Peaceful Uses of Outer Space should indicate its support for the International Global Monitoring Aerospace System project.

40. The view was expressed that a working group on enhancing global cooperation in satellite-based emergency mapping could be established in the framework of the Committee on the Peaceful Uses of Outer Space.

41. The Working Group of the Whole, reconvened pursuant to General Assembly resolution 65/97, also considered agenda item 8, “Space-system-based disaster management support”. At its [736th meeting, on 18 February], the Subcommittee endorsed the report of the Working Group of the Whole, contained in annex I to the present report.

VII. Recent developments in global navigation satellite systems

42. In accordance with General Assembly resolution 65/97, the Subcommittee considered agenda item 9, “Recent developments in global navigation satellite systems”.

43. The representatives of Canada, Germany, India, Italy, Japan, Nigeria, the Russian Federation and the United States made statements under agenda item 9. The observer for the United Arab Emirates also made a statement. A statement was made by the observer for the European Union. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

44. The Subcommittee heard the following scientific and technical presentations:

(a) “Remote sensing of the Earth’s atmosphere with navigation satellites: recent results (from GFZ)”, by the representative of Germany;

(b) “Status and perspectives of the development of the Global Navigation Satellite System (GLONASS)”, by the representative of the Russian Federation;

(c) “The Fifth Meeting of the International Committee on Global Navigation Satellite Systems (Turin, 18-22 October 2010): achievements and results”, by the representative of Italy.

45. For its consideration of the item, the Subcommittee had before it the following documents:

- (a) Report on the United Nations/Republic of Moldova/United States of America Workshop on Applications of Global Navigation Satellite Systems (A/AC.105/974);
- (b) Note by the Secretariat on the Fifth Meeting of the International Committee on Global Navigation Satellite Systems (A/AC.105/982);
- (c) Report on the United Nations/International Astronautical Federation Workshop on Global Navigation Satellite System Applications for Human Benefit and Development (A/AC.105/984).

46. The Subcommittee noted that the United Nations/United Arab Emirates Workshop on the Applications of Global Navigation Satellite Systems, co-sponsored by the United States, had been hosted by the Emirates Institution for Advanced Science and Technology on behalf of the Government of the United Arab Emirates from 16 to 20 January 2011 in Dubai, United Arab Emirates.

47. The Subcommittee was informed that the Office for Outer Space Affairs was developing its programme on global navigation satellite system (GNSS) applications, including deploying instruments for the International Space Weather Initiative and developing an education curriculum on GNSS to be integrated into the educational programmes of the regional centres for space science and technology education, affiliated to the United Nations, which were also acting as information centres for the International Committee on Global Navigation Satellite Systems (ICG).

48. The Subcommittee reviewed issues related to ICG and the latest developments in the field of GNSS technology and applications.

49. The Subcommittee noted with satisfaction that the Fifth Meeting of ICG had been held in Turin, Italy, from 18 to 22 October 2010, jointly organized by the Government of Italy and the European Commission on behalf of the European Union, and that the sixth meeting of ICG would be held in Tokyo from 5 to 9 September 2011. The Subcommittee also noted that the seventh meeting of ICG would be hosted by China in 2012.

50. The Subcommittee noted that each of the four working groups of ICG focused on one of the following issues: compatibility and interoperability; enhancement of the performance of GNSS services; information dissemination and capacity-building; and timing and applications. The Subcommittee also noted the substantive progress made with regard to the workplans of ICG and its Providers' Forum, in particular with regard to the principle of transparency for open services, and called for the further advancement of this principle in the coming year. The Subcommittee also noted that the Providers' Forum had held its sixth meeting, in conjunction with the fifth meeting of ICG.

51. The Subcommittee commended the Office for Outer Space Affairs in its capacity as the Executive Secretariat of ICG and the Providers' Forum, and for its attempt to create synergy among global players in satellite navigation.

52. The Subcommittee expressed its appreciation to the Office for Outer Space Affairs for its efforts in promoting the use of GNSS throughout its capacity-building initiatives in developing countries.

53. The Subcommittee noted that the United States was committed to continuing to improve the accuracy and availability of the global positioning system (GPS) through improved satellite and clock performance and an expanded constellation configuration. It also noted the commitment of the United States to maintain GPS as a central pillar of an emerging international system of GNSS.

54. The Subcommittee noted with appreciation the financial contributions made by the United States, which enabled the Office for Outer Space Affairs to undertake a number of activities relating to GNSS and ICG and the Provider's Forum, including the organization of regional workshops.

55. The Subcommittee noted that the Global Navigation Satellite System (GLONASS) of the Russian Federation currently had 22 operational GLONASS-M satellites in orbit, with the other 4 satellites in maintenance status. The Subcommittee also noted that the test flight for the next generation of GLONASS-K satellites was planned for 2011.

56. The Subcommittee noted that Germany, as one of the founders of the European Galileo satellite navigation system, continued to promote and develop national application projects aimed at fostering the use of satellite navigation, harmonizing them with European projects. The long-term intention was to make the exploitation of Galileo the starting point for enabling innovative small and medium-sized national enterprises to compete in international markets.

57. The Subcommittee noted that India was currently implementing the GPS-aided GEO-Augmented Navigation System (GAGAN), a space-based augmentation system for delivering increased position accuracy for civil aviation applications. The Indian Regional Navigation Satellite System (IRNSS), with seven satellites in geostationary and geo-equatorial orbits, was in the implementation phase, and the full constellation was expected to be completed in 2014.

58. The Subcommittee noted that Japan was promoting the Quasi-Zenith Satellite System (QZSS) and the Multi-functional Transport Satellite (MTSAT) Satellite-based Augmentation System (MSAS). The first satellite of QZSS, named "Michibiki", was successfully launched on September 2010. QZSS would complement and reinforce GPS and its signals to be received in the Asia-Oceania region. Japan's involvement in the establishment of a multi-GNSS network for the region was outlined.

59. The Subcommittee noted the progress made by Nigeria in the establishment of the continuously operating reference stations as part of the ground segment of a future space-based augmentation system for Africa. The Nigerian permanent GNSS network (NIGNET) would consist of a total of 50 stations with the aim of providing uniform coverage at the national level, thus maintaining a modern reference frame for the country.

60. The Subcommittee noted that, in the framework of the International Satellite System for Search and Rescue (COSPAS-SARSAT), Canada was coordinating with GNSS providers to incorporate operational search and rescue payloads on future global navigation satellites in medium-Earth orbit, such as GPS, GLONASS and

Galileo in order to improve coverage and the speed of detecting and locating 406 megahertz emergency distress beacons worldwide.

VIII. Use of nuclear power sources in outer space

61. In accordance with General Assembly resolution 65/97, the Subcommittee considered agenda item 10, "Use of nuclear power sources in outer space".

62. The representatives of the United States and Venezuela (Bolivarian Republic of) made statements under agenda item 10. During the general exchange of views, statements relating to the item was also made by the representative of Colombia on behalf of the Group of Latin American and Caribbean States.

63. The Subcommittee encouraged States and international intergovernmental organizations to begin or to continue implementing the Safety Framework for Nuclear Power Source Applications in Outer Space (A/AC.105/934).

64. Some delegations expressed the view that the Safety Framework represented a significant advance in the development of safe nuclear power source (NPS) applications and that the implementation of the Safety Framework by Member States and international intergovernmental organizations would provide assurance to the global public that space NPS applications were being developed, launched and used in a safe manner.

65. The view was expressed that the implementation of the Safety Framework would enable bilateral and multilateral cooperation in the field of the use of space NPS by States and international intergovernmental organizations. That delegation was of the view that sharing of information on national practices in the area of the safety of use of NPS would encourage the implementation of the Safety Framework by member States and international intergovernmental organizations.

66. Some delegations expressed the view that more consideration should be given to the use of NPS in geostationary orbit and low-Earth orbit in order to address the problem of potential collisions of NPS objects in orbit, as well as to their accidental re-entry in the Earth's atmosphere. Those delegations were of the view that more attention should be given to this matter through adequate strategies, long-term planning and regulations, including the Safety Framework for Nuclear Power Sources Applications in Outer Space.

67. Some delegations expressed the view that it was exclusively States, irrespective of their level of social, economic, scientific or technical development, that had an obligation to engage in the regulatory process associated with the use of nuclear power sources in outer space and that the matter concerned all humanity. Those delegations were of the view that Governments bore international responsibility for national activities involving the use of nuclear power sources in outer space conducted by governmental and non-governmental organizations and that such activities must be beneficial, not detrimental, to humanity.

68. Some delegations were of the view that the use of nuclear power sources in outer space should be as limited as possible and that comprehensive and transparent information on measures taken to ensure safety should be provided to other States. Those delegations were of the view that while NPS were needed for some

interplanetary missions, no justification existed for the use of NPS in terrestrial orbits, for which other sources of energy were available that were much safer and had been proved to be efficient.

69. The view was expressed that in using NPS in outer space, States should consider the limited character of the near-Earth space environment.

70. The view was expressed that the application of NPS in space missions was important because it could help States to further the objectives of space exploration.

71. Pursuant to General Assembly resolution 65/97, the Working Group on the Use of Nuclear Power Sources in Outer Space was reconvened under the chairmanship of Sam A. Harbison (United Kingdom). The Working Group held [...] meetings.

72. The Subcommittee welcomed the Workshop on the Use of Nuclear Power Sources in Outer Space, held by the Working Group during its first meeting, in the afternoon of 9 February.

73. At its [...] meeting, on [...] February, the Subcommittee endorsed the report of the Working Group, including the report on the Workshop held by the Working Group in conjunction with the current session of the Subcommittee. The report of the Working Group is contained in annex [...] to the present report.

X. International Space Weather Initiative

74. In accordance with General Assembly resolution 65/97, the Scientific and Technical Subcommittee considered agenda item 12, “International Space Weather Initiative” under the workplan contained in the annex to document A/AC.105/933.

75. The representatives of China, India, Japan, Slovakia and the United States made statements under agenda item 12. The observer for WMO also made a statement. During the general exchange of views, statements relating to the item were also made by representatives of other member States and by the representative of Colombia on behalf of the Group of Latin American and Caribbean States.

76. The Subcommittee heard the following scientific and technical presentations:

- (a) “Space weather superstorm: not ‘if’ but ‘when’ — and extreme solar minimum”, by the representative of the United States;
- (b) “From research to operations: ongoing and planned European and international space weather projects”, by the representative of Germany;
- (c) “International space weather initiative update”, by the representative of the United States;
- (d) “Japanese space weather activities”, by the representative of Japan;
- (e) “Chinese ground-based space weather monitoring project”, by the representative of China;
- (f) “Scientific activities on space weather research in India”, by the representative of India.

77. The Subcommittee had before it a note by the Secretariat containing information received from Member States and observers on regional and

international activities related to the International Space Weather Initiative (A/AC.105/979).

78. The Subcommittee noted that the objectives of the International Space Weather Initiative were to develop the scientific insight necessary to understand the solar-terrestrial relationships inherent to space weather, to reconstruct and forecast near-Earth space weather and to communicate that knowledge to scientists, engineers, policymakers and the general public.

79. The Subcommittee welcomed the fact that participation in the Initiative was open to all countries, as instrument hosts or as instrument providers. The Initiative is governed by a Steering Committee of 16 members, which meet once a year to assess progress and provide prioritization for the upcoming year. The Steering Committee held its first meeting in Vienna on February 9, 2011. National coordinators from 81 countries help to coordinate International Space Weather Initiative activities at the national level.

80. The Subcommittee noted that the Initiative consisted of three elements: the instrument array programme to operate and deploy space weather instruments; the data coordination and analysis programme to develop predictive models using International Space Weather Initiative data; and training, education and public outreach programmes.

81. The view was expressed that research under the Initiative had to be a globally concerted effort, given that it would ultimately contribute to the understanding of the conditions on the Sun and of the solar wind, the magnetosphere, the ionosphere and the thermosphere that could influence the performance and reliability of space-borne and ground-based technological systems and could endanger human life or health.

82. The Subcommittee noted with appreciation that WMO had supported international efforts of the International Space Weather Initiative since 2008, through the following activities: the capability of flying space weather instruments on meteorological satellites, the use of WMO information systems to enhance data exchange and data distribution worldwide and the exchange of experience between the atmospheric modelling community and the space weather community.

83. The Subcommittee noted with appreciation that information on the ground-based worldwide instrument arrays was being regularly distributed through a newsletter published by the Space Environment Research Centre of Kyushu University of Japan and through the International Space Weather Initiative website, maintained by the Academy of Sciences of Bulgaria (www.iswi-secretariat.org).

84. The Subcommittee noted with appreciation that the Office for Outer Space Affairs continues to support the study of the effect of sudden disturbances on the ionosphere through the use of the sudden ionospheric disturbance monitor installed at its permanent outer space exhibit at the United Nations Office at Vienna. The daily data sets produced by that instrument and recorded by the Office were transferred to Stanford University of the United States for scientists worldwide to use in their analysis of the complex relationship between the Earth and the Sun.

85. The Subcommittee welcomed the fact that the United Nations Programme on Space Applications had organized the United Nations/National Aeronautics and Space Administration/Japan Aerospace Exploration Agency Workshop on the

International Space Weather Initiative, held from 6 to 10 November 2010 at Helwan University in Cairo, and welcomed the upcoming workshops scheduled to take place in Nigeria in 2011 and in Ecuador in 2012.
