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Report of the Scientific and Technical Subcommittee on its forty-fifth session, held in Vienna from 11 to 22 February 2008

Contents

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I. Introduction

1. The Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space held its forty-fifth session at the United Nations Office at Vienna from 11 to 22 February 2008, under the chairmanship of Aboubekr Seddik Kedjar (Algeria).

2. The Subcommittee held 20 meetings.

A. Attendance

3. Representatives of the following 55 member States of the Committee attended the session: Algeria, Argentina, Austria, Belgium, Bolivia, Brazil, Bulgaria, Burkina Faso, Canada, Chile, China, Colombia, Cuba, Czech Republic, Ecuador, Egypt, France, Germany, Greece, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Italy, Japan, Kazakhstan, Lebanon, Libyan Arab Jamahiriya, Malaysia, Mexico, Morocco, Nigeria, Pakistan, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Slovakia, South Africa, Spain, Sweden, Switzerland, Syrian Arab Republic, Thailand, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America, Venezuela (Bolivarian Republic of) and Viet Nam.

4. At the 678th meeting, on 11 February, the Chairman informed the Subcommittee that requests had been received from Angola, Costa Rica, Côte d'Ivoire, the Dominican Republic, El Salvador, Guatemala, the former Yugoslav Republic of Macedonia and Tunisia to attend the session as observers. Following past practice, those States were invited to send delegations to attend the current session of the Subcommittee and address it, as appropriate, without prejudice to further requests of that nature; that action did not involve any decision of the Subcommittee concerning status but was a courtesy that the Subcommittee extended to those delegations.

5. The following United Nations entities were represented at the session by observers: the United Nations Institute for Training and Research, the International Telecommunication Union (ITU), the World Meteorological Organization and the International Atomic Energy Agency (IAEA).

6. The following were also represented by observers: the African Organization of Cartography and Remote Sensing (AOCRS), the Association of Space Explorers (ASE), the Committee on Earth Observation Satellites, the Committee on Space Research, EURISY, the European Space Agency (ESA), the European Space Policy Institute (ESPI), the secretariat of the Group on Earth Observations (GEO), the International Astronautical Federation (IAF), the International Mobile Satellite Organization, the International Society for Photogrammetry and Remote Sensing, the International Space University, the Space Generation Advisory Council (SGAC) and the World Space Week Association. The European Organisation for Astronomical Research in the Southern Hemisphere (ESO) and the Secure World Foundation (SWF) attended the session and have pending requests for permanent observer status with the Committee. The European Telecommunications Satellite Organization (EUTELSAT-IGO) attended the session and requested permanent

observer status with the Committee (A/AC.105/C.1/2008/CRP.7). The European Commission also attended the session.

7. A list of the representatives of States, United Nations entities and other international organizations attending the session is contained in A/AC.105/C.1/2008/INF/37.

B. Adoption of the agenda

8. At its 678th meeting, on 11 February 2008, the Subcommittee adopted the following agenda:

1. Adoption of the agenda.
2. Election of the Chairman.
3. Statement by the Chairman.
4. General exchange of views and introduction of reports submitted on national activities.
5. United Nations Programme on Space Applications.
6. Implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III).
7. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment.
8. Space debris.
9. Space-system-based disaster management support.
10. Recent developments in global navigation satellite systems.
11. Use of nuclear power sources in outer space.
12. Near-Earth objects.
13. International Heliophysical Year 2007.
14. Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries.
15. Draft provisional agenda for the forty-sixth session of the Scientific and Technical Subcommittee.
16. Report to the Committee on the Peaceful Uses of Outer Space.

C. Election of the Chairman

9. At its 678th meeting, the Subcommittee elected Aboubekr Seddik Kedjar (Algeria) Chairman for the period 2008-2009, pursuant to General Assembly resolution 62/217 of 22 December 2007.

D. General statements

10. The Subcommittee welcomed the election of Aboubekr Seddik Kedjar as Chairman for a two-year term, starting in 2008. The Subcommittee expressed its appreciation to the outgoing Chairman, Mazlan Othman (Malaysia), for her leadership and contribution to furthering the achievements of the Subcommittee during her term of office, and welcomed Ms. Othman in her new role as Director of the Office for Outer Space Affairs of the Secretariat.

11. The Subcommittee warmly welcomed Bolivia and Switzerland as new members of the Committee, and AOCRS was welcomed as the newest permanent observer of the Committee.

12. Statements were made by representatives of the following member States during the general exchange of views: Algeria, Austria, Bolivia, Brazil, Canada, Chile, China, Colombia, Cuba, Czech Republic, Ecuador, France, Germany, Hungary, India, Indonesia, Iran (Islamic Republic of), Italy, Japan, Libyan Arab Jamahiriya, Malaysia, Nigeria, Pakistan, Philippines, Poland, Republic of Korea, Romania, Russian Federation, South Africa, Spain, Switzerland, Syrian Arab Republic, Thailand, United Kingdom, United States and Venezuela (Bolivarian Republic of). General statements were made by the observers for ESA, ESO, ESPI, EURISY, EUTELSAT-IGO, IAF, SGAC and SWF.

13. At the 678th meeting, the Chairman 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.

14. Also at the 678th meeting, the Director of the Office for Outer Space Affairs made a statement reviewing the work programme of the Office.

15. At its 686th meeting, the Subcommittee was informed of plans to intercept USA 193, an inoperable satellite of the National Reconnaissance Office of the United States, which was in a decaying orbit. At its 690th meeting, the Subcommittee heard a special presentation, given by the United States, on the steps being taken to mitigate the debris generated by the planned interception. At its 695th meeting, the Subcommittee was informed that the United States had successfully intercepted USA 193 and that most of the resultant space debris had entered the atmosphere or would do so within the following 48 hours.

16. The view was expressed that the Committee on the Peaceful Uses of Outer Space and its Legal Subcommittee should promptly examine the question of the right of States, under the existing rules of international space law, to undertake the destruction of their own errant, defective or inoperable space objects in order to avoid damage to property and fatalities on Earth or in outer space. The Committee

and its Subcommittee should also examine which rules of international law were applicable and under what circumstances such operations should be undertaken.

E. National reports

17. The Subcommittee took note with appreciation of the reports submitted by Member States (A/AC.105/907 and Add.1) for its consideration under agenda item 4, "General exchange of views and introduction of reports submitted on national activities". The Subcommittee recommended that the Secretariat continue to invite Member States to submit annual reports on their space activities.

F. Symposium

18. Pursuant to General Assembly resolution 62/217, an industry symposium on the theme "Space industry in emerging space nations" was held on 12 February 2008. It was moderated by the Director of the Office for Outer Space Affairs.

19. The presentations given at the symposium included the following: "Space industry of emerging space nations in the global space market", by S. Bochinger of Euroconsult; "IAF and its role to promote space industry relations with emerging space nations", by J. V. Zimmerman of IAF; "Building indigenous space industry capacities: the Indian experience", by K. Radhakrishnan of the Indian Space Research Organization (ISRO); "Satellite solutions in emerging countries", by B. Pavesi of Telespazio; and "Cooperation between space industry in established and emerging space nations" by G. Maquet of Astrium.

G. Coordination of space activities within the United Nations system and inter-agency cooperation

20. The Subcommittee noted with satisfaction that the Inter-Agency Meeting on Outer Space Activities had held its twenty-eighth session in Geneva from 16 to 18 January 2008. The Subcommittee had before it the report of the Inter-Agency Meeting on its twenty-eighth session (A/AC.105/909) and the report of the Secretary-General on the coordination of space-related activities within the United Nations system: directions and anticipated results for the period 2008-2009 (A/AC.105/910). The Subcommittee noted that those reports indicated the extent to which space technology and its applications had become essential tools in support of a wide range of United Nations activities aimed at implementing and supporting the goals and decisions of global conferences and summits and that they served as strategic tools for the United Nations to avoid duplication of efforts in the use of space applications and space-related activities.

21. The Subcommittee noted with appreciation that the Inter-Agency Meeting had agreed to prepare a report on the benefits of space technology for sustainable development in Africa and noted that the report was to be presented at the Third African Leadership Conference on Space Science and Technology for Sustainable Development, to be held in Algeria in 2009.

22. The Subcommittee further noted that the Inter-Agency Meeting had agreed on the desirability of reporting to the Committee on the Peaceful Uses of Outer Space and of moving the dates of its annual meetings closer to the sessions of the Committee.

23. The Subcommittee noted that the Inter-Agency Meeting would hold its twenty-ninth session in Vienna in 2009.

24. The Subcommittee noted that, following its twenty-eighth session, on 18 January 2008, the Inter-Agency Meeting had held its fifth open informal session for member States and observers of the Committee. The theme of "Public-private partnerships and innovative funding approaches in the United Nations system to promote the use of space technology and its applications" was discussed in response to the growing number of calls from Member States for the United Nations system to engage in mutually beneficial public-private partnerships and to seek innovative funding approaches in support of implementing mandated activities with greater efficiency and effectiveness.

H. Adoption of the report of the Scientific and Technical Subcommittee

25. After considering the items before it, the Subcommittee, at its 697th meeting, on 22 February 2008, adopted its report to the Committee on the Peaceful Uses of Outer Space, containing its views and recommendations, as set out in the paragraphs below.

II. United Nations Programme on Space Applications

26. In accordance with General Assembly resolution 62/217, the Scientific and Technical Subcommittee continued its consideration of agenda item 5, "United Nations Programme on Space Applications".

27. At the 679th meeting, the Expert on Space Applications made a statement outlining the activities carried out and planned under the United Nations Programme on Space Applications.

28. The representatives of Canada, India, Japan, Mexico and the United States made statements under agenda item 5.

29. In accordance with General Assembly resolution 62/217, the Subcommittee, at its 682nd meeting, reconvened the Working Group of the Whole and elected K. Radhakrishnan (India) Chairman. The Working Group of the Whole held seven meetings, from 13 to 21 February 2008. At its 695th meeting, on 21 February, the Subcommittee endorsed the report of the Working Group of the Whole, which is contained in annex I to the present report.

A. Activities of the United Nations Programme on Space Applications

30. The Subcommittee had before it the report of the Expert on Space Applications (A/AC.105/900). The Subcommittee noted that the United Nations Programme on

Space Applications for 2007 had been carried out satisfactorily and commended the work accomplished by the Expert in that regard.

31. The Subcommittee noted that the priority thematic areas of the Programme were natural resources management and environmental monitoring, disaster management, tele-education and tele-health, and education and capacity-building in areas including basic space science and space law. The Subcommittee also noted that the following were among the technology applications that could be used to address those thematic areas: global navigation satellite systems (GNSS), satellite communications, remote sensing and the geographic information system (GIS), Earth observation and meteorology satellites, and the application of micro- and nanotechnologies in space. The Subcommittee further noted that the Programme took the approach of "integrated space technology applications", in which all the above-mentioned priority thematic areas were integrated, when appropriate. The Subcommittee also noted that all the priority thematic areas should continue to be included in the Programme in order to ensure the integrity of the overall efforts of the Programme.

32. The Subcommittee noted with appreciation that, since its previous session, additional resources for 2007 had been provided by various Member States and organizations and had been acknowledged in the report of the Expert (A/AC.105/900, paras. 58 and 59).

33. The Subcommittee expressed its concern that the financial resources available for carrying out the United Nations Programme on Space Applications remained limited and appealed to Member States to support the Programme through voluntary contributions. The Subcommittee was of the view that the limited resources of the United Nations should be focused on activities with the highest priority. It noted that the United Nations Programme on Space Applications was a priority activity of the Office for Outer Space Affairs.

34. The Subcommittee noted that space science and technology and their applications formed an integral part of the development agenda and possessed vast potential for addressing a variety of socio-economic problems in developing countries, particularly in the areas of communication, rural development, disaster management, education and health. The Subcommittee noted in that regard that the workshops, training courses, seminars and meetings of the United Nations Programme on Space Applications were of paramount importance in increasing the capability to use space science and technology and their applications, particularly in developing countries.

35. The Subcommittee noted that, in addition to the United Nations conferences, training courses, workshops, seminars and symposiums planned for 2008 (see para. 40 below), other activities of the Programme in 2008 would place emphasis on the following areas:

(a) Providing support for education and training for capacity-building in developing countries through the regional centres for space science and technology education, affiliated to the United Nations;

(b) Organizing workshops and seminars on advanced space applications and short and medium-length training programmes;

(c) Strengthening its long-term fellowship programme to include support for the implementation of pilot projects;

(d) Promoting the participation of youth in space activities;

(e) Supporting or initiating pilot projects as follow-up to activities of the Programme in areas of priority interest to member States;

(f) Providing technical advisory services, upon request, to Member States, bodies and specialized agencies of the United Nations system and relevant national and international organizations;

(g) Enhancing access to space-related data and other information.

1. Year 2007

Meetings, seminars, symposiums, training courses and workshops

36. With regard to the activities of the United Nations Programme on Space Applications carried out in 2007, the Subcommittee expressed its appreciation to the following for co-sponsoring the various workshops, symposiums and training courses that had been held within the framework of the Programme referred to in the report of the Expert on Space Applications (A/AC.105/900, para. 59 and annex I):

(a) The Governments of Argentina, Austria, India, Japan, Mexico, Morocco, Switzerland, the Republic of Korea, the Russian Federation, the United States and Viet Nam;

(b) ESA, the International Academy of Astronautics, IAF, the Space Research Institute of the Austrian Academy of Sciences and Joanneum Research, the National Aeronautics and Space Administration (NASA) of the United States, the National Astronomical Observatory of Japan, the National Centre for Health Technology Excellence of Mexico, the National Commission on Space Activities of Argentina (CONAE), the National Remote Sensing Agency of India, the Royal Centre for Remote Sensing of Morocco, the Russian Space Research Institute of the Russian Academy of Sciences, and the Vietnamese Academy of Science and Technology.

Long-term fellowships for in-depth training

37. The Subcommittee expressed its appreciation to the Government of Italy, which, through the Politecnico di Torino and the Istituto Superiore Mario Boella and with the collaboration of the Istituto Elettrotecnico Nazionale Galileo Ferraris, had continued to provide five 12-month fellowships for postgraduate studies in GNSS and related applications.

38. The Subcommittee noted with satisfaction that, in June 2007, the Programme and CONAE had jointly established the United Nations/Argentina fellowship programme for advanced training in landscape epidemiology as an annual six-week training course, to be held at the Mario Gulich Institute for Higher Space Studies in Córdoba, Argentina.

Technical advisory services

39. The Subcommittee noted with appreciation the technical advisory services provided under the United Nations Programme on Space Applications in support of activities and projects promoting regional cooperation in space applications, as referred to in the report of the Expert on Space Applications (A/AC.105/900, paras. 34-42).

2. Year 2008

Meetings, seminars, symposiums, training courses and workshops

40. The Subcommittee recommended the approval of the following programme of meetings, seminars, symposiums, training courses and workshops, to be organized jointly by the Office for Outer Space Affairs, host Governments and others in 2008:

(a) United Nations/Saudi Arabia/United Nations Educational, Scientific and Cultural Organization International Conference on the Use of Space Technology in Water Management, to be held in Riyadh from 15 to 19 March;

(b) United Nations/Burkina Faso/World Health Organization/European Space Agency Workshop on the Use of Space Technology in Tele-health to Benefit Africa, to be held in Ouagadougou from 5 to 9 May;

(c) United Nations/European Space Agency/National Aeronautics and Space Administration/Japanese Aerospace Exploration Agency Workshop on the International Heliophysical Year 2007 and Basic Space Science: First Results from the International Heliophysical Year 2007, to be held in Sozopol, Bulgaria, from 2 to 6 June;

(d) United Nations/Colombia/United States of America Workshop on Applications of Global Navigation Satellite Systems, to be held in Medellín, Colombia, from 23 to 27 June;

(e) United Nations/Indonesia Regional Workshop on Applications of Integrated Space Technology in Water Resource Management, Environmental Protection and Disaster Vulnerability Mitigation, to be held in Jakarta from 7 to 11 July;

(f) United Nations/Austria/European Space Agency Symposium on Space Applications to Support the Plan of Implementation of the World Summit on Sustainable Development, to be held in Graz, Austria, from 9 to 12 September;

(g) United Nations/International Astronautical Federation Workshop on Space Technology: Support for an Integrated Approach to Address Potential Environmental Hazards, to be held in Glasgow, United Kingdom, on 26 and 27 September;

(h) United Nations/International Academy of Astronautics Workshop on Small Satellites in the Service of Developing Countries, to be held in Glasgow, United Kingdom, on 30 September;

(i) United Nations/India/European Space Agency Regional Workshop on the Use of Space Technology in Tele-Epidemiology to Benefit Asia and the Pacific, to be held in Lucknow, India, from 21 to 24 October;

(j) United Nations Workshop on Space Law, to be held in Bangkok from 24 to 27 November;

(k) United Nations/Kenya/European Space Agency Regional Workshop on the Use of Integrated Space Technology Applications in Monitoring the Impact of Climate Change on Agricultural Development and Food Security, to be held in Nairobi from 1 to 5 December;

(l) Workshops and training courses to be organized at the regional centres for space science and technology education, affiliated to the United Nations.

B. International Space Information Service

41. The Subcommittee noted with satisfaction the publication of *Highlights in Space 2007*,[1] which had been compiled from a report prepared by IAF, in cooperation with the International Institute of Space Law. The Subcommittee expressed its appreciation to the contributors for their work.

42. The Subcommittee noted with appreciation that the Secretariat had continued to enhance the International Space Information Service and the website of the Office for Outer Space Affairs (www.unoosa.org), as well as the website on the coordination of outer space activities within the United Nations system (www.uncosa.unvienna.org).

C. Regional and interregional cooperation

43. The Subcommittee noted that the highlights of the activities of the regional centres for space science and technology education, affiliated to the United Nations, supported under the United Nations Programme on Space Applications in 2007 and planned activities for 2008 and 2009 were included in the report of the Expert on Space Applications (A/AC.105/900, annex III).

44. The Subcommittee noted that all the regional centres had scheduled meetings of their governing boards, as the policymaking bodies of the regional centres, in 2008. Those meetings would be utilized to strengthen cooperation with Governments in the respective regions to further develop the status of the regional centres as centres of excellence for education in all aspects of space science and technology.

45. The Subcommittee further noted with satisfaction that the United Nations Programme on Space Applications continued to emphasize cooperation with member States at the regional and international levels, aimed at supporting the centres.

46. The Subcommittee noted that the regional centres had participated in the International Institute for Geo-Information Science and Earth Observation/Group on Earth Observations/International Society for Photogrammetry and Remote Sensing seminar on recognition of cross-border capacity-building in Earth observation, held on 1 and 2 November 2007 at Enschede, the Netherlands. Implementation of the

[1] United Nations publication, Sales No. E.08.I.7.

conclusions of the seminar would guide the regional centres to enhance the recognition and governance of higher education qualifications in Earth observation and geo-information at the regional and international levels.

47. The Subcommittee further noted that the Government of India had continuously provided strong support to the Regional Centre for Space Science and Technology Education in Asia and the Pacific since its inception in 1995, including by making the appropriate facilities and expertise available to it through ISRO and the Department of Space of India. The Subcommittee also noted that, to date, the Centre had conducted 26 nine-month postgraduate courses: 11 on remote sensing and GIS, 5 on satellite communications, and 5 each on satellite meteorology and global climate and space and atmospheric science. The Centre had further conducted 16 short courses and workshops in the previous 10 years. Having completed over a decade of educational activities, the Centre was planning to achieve the status of international centre of excellence in training, education and research. A total of 752 people from 46 countries had participated in the courses mentioned above.

48. The Subcommittee noted that the Regional Centre for Space Science and Technology Education in Latin America and the Caribbean had started organizing nine-month postgraduate courses in 2002. The Centre was strongly supported by the Governments of Brazil and Mexico and by the National Institute for Space Research of Brazil and the National Institute of Astrophysics, Optics and Electronics of Mexico. To date, the campus in Brazil had conducted five postgraduate courses on remote sensing and GIS. The campus in Mexico had conducted two postgraduate courses on remote sensing and GIS and one course on satellite communications and had prepared a course on space and atmospheric science, to be offered in 2008. The campus in Mexico involved students in the development of technological projects related to the courses. In 2007, the Centre had hosted three short courses. The Center for the Integrated Surveying of Natural Resources by Remote Sensing of Ecuador had extended its support to the activities of the Centre in 2007.

49. The Subcommittee noted that the African Regional Centre for Space Science and Technology—in French Language had been organizing nine-month postgraduate courses since its inauguration in 1998. The Centre was actively supported by the Governments of Algeria and Morocco, as well as by the Royal Centre for Remote Sensing, the Mohammadia Engineering School, the Hassan II Institute of Agronomy and Veterinary Medicine, the National Institute of Telecommunications and the National Directorate of Meteorology of Morocco. The Subcommittee noted that the Centre had already conducted eight nine-month postgraduate courses in remote sensing and GIS, satellite communications and satellite meteorology and global climate. Since its inauguration, the Centre had organized 13 short-term workshops and conferences.

50. The Subcommittee noted that, since its inauguration in Nigeria in 1998 under the auspices of the National Space Research and Development Agency of Nigeria, the African Regional Centre for Space Science and Technology Education—in English Language had organized 12 nine-month postgraduate courses: five in remote sensing and GIS, two in satellite meteorology and global climate, four in satellite communications and one in space and atmospheric science. In September 2007, 25 course participants from five African countries (Cameroon, the Democratic Republic of the Congo, Malawi, Nigeria and the Sudan) had been

awarded postgraduate diplomas in either remote sensing and GIS or in satellite communications.

51. The Subcommittee noted that, for the regional centres for space science and technology education to operate effectively, they should receive the support of the countries of the region. Those countries should make use of all the educational and training programmes established under the plans developed by the regional centres.

52. The Subcommittee noted that, in promoting capacity-building in areas related to space activities, training courses on remote sensing and GIS had been carried out jointly by the Japan Aerospace Exploration Agency and the Asian Institute of Technology, located in Thailand, for government officials in the Asian region.

53. The Subcommittee also noted that the fourteenth session of the Asia-Pacific Regional Space Agency Forum had been held in Bangalore, India, from 21 to 23 November 2007. The theme of the session had been "Space for human empowerment" and its aims had been strengthening collaboration in the sharing of disaster-related information, especially through the Sentinel Asia project, and promoting the use of space education for young people in the region of Asia and the Pacific.

54. The Subcommittee also noted that the Asia-Pacific Space Cooperation Organization provided a cooperative arrangement to promote the peaceful uses of outer space in the region.

55. The Subcommittee noted that the Village Resource Centres that had been established across India were an example of a unique societal application of space technology and would provide a variety of services relevant to rural communities, such as expert advice on agriculture, fishery, health and hygiene, as well as access to information on natural resources in areas such as watershed development and land use.

56. The Subcommittee noted that the Second African Leadership Conference on Space Science and Technology for Sustainable Development, with the theme "Building African partnerships in space" had been held in Pretoria from 2 to 5 October 2007. Building upon the first African Leadership Conference on Space Science and Technology for Sustainable Development, which had been held in November 2005, the Conference focused on capacity-building, knowledge-sharing and the joint participation of African countries in mutually beneficial projects in the area of space science and technology for sustainable development. The Subcommittee also noted that the Third African Leadership Conference on Space Science and Technology for Sustainable Development would be held in Algeria in 2009.

57. The Subcommittee further noted that the international workshop entitled "Climate change and adaptation in Africa: the role of space technologies" had been held in Algiers from 22 to 24 October 2007. Organized by the African Regional Centre for Space Science and Technology—in French Language and the Algerian Space Agency, the workshop had been aimed at improving the capacity of African countries to adapt to climate change in ways that benefited the most vulnerable.

58. The Subcommittee noted that the United Nations/Mexico/Pan-American Health Organization Training Course on Satellite Technology for Tele-health had been held in Mexico City from 25 to 29 June 2007. Over 30 recommendations had

been made by the participants, as a result of which a task force had been established for the Latin American and Caribbean region and a regional initiative in the field of tele-epidemiology was to be implemented. The Subcommittee noted that Canada, as co-chair of the Action Team on Public Health, had expressed the interest of the Action Team in following up on the outcomes of that workshop, as well as on other activities related to tele-health and tele-epidemiology that were organized under the auspices of the Office for Outer Space Affairs. Such follow-up would contribute to the current work of the Action Team.

59. The Subcommittee noted that a meeting had been held in Quito on 13 and 14 December 2007 and that it had been attended by representatives of the Government of Ecuador, host of the Fifth Space Conference of the Americas in 2006; the Government of Colombia, host of the Fourth Conference in 2002; the Government of Guatemala, host of the Sixth Conference, to be held in 2009; and the Office for Outer Space Affairs, as well as the International Group of Experts of the Space Conferences of the Americas. The Subcommittee took note of the execution of the Action Plan of the Fifth Space Conference and the set of recommendations for the preparation of the Sixth Conference that had been adopted by the International Group of Experts at the meeting in Quito (A/AC.105/C.1/2008/CRP.5). The Subcommittee also noted the proposal that Walter Lichem become a member of the International Group of Experts.

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

60. In accordance with General Assembly resolution 62/217, the Scientific and Technical Subcommittee continued its consideration of agenda item 6, on the implementation of the recommendations of UNISPACE III. Pursuant to paragraph 13 of Assembly resolution 62/217, the Subcommittee requested the Working Group of the Whole, reconvened at its 683rd meeting, on 13 February, to consider the issue.

61. At its 695th meeting, on 21 February, the Subcommittee endorsed the recommendations of the Working Group of the Whole concerning the implementation of the recommendations of UNISPACE III, as contained in the report of the Working Group (see annex I).

62. The representatives of Canada, India, Japan and the United States made statements on the item.

63. The Subcommittee heard the following scientific and technical presentations on the item:

(a) “A response model for an early warning system”, by the representative of Germany;

(b) “Bridging the gap, or why in the twenty-first century students no longer reach for the stars”, by the observer for SGAC;

(c) “Space activities of students from Warsaw University of Technology”, by the representative of Poland;

(d) “Practice of the Ukrainian Youth National Aerospace Education Center in the field of dissemination of knowledge about space among youth”, by the representative of Ukraine;

(e) “Scientific events in the field of space sciences carried out by the Russian Academy of Sciences in 2007”, by the representative of the Russian Federation;

(f) “Airspace rocket complexes designed by Yuzhnoye”, by the representative of Ukraine.

64. The Subcommittee recalled the importance of implementing the Plan of Action contained in the report of the Committee on the Peaceful Uses of Outer Space on the implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (A/59/174, sect. VI.B) and endorsed by the General Assembly in its resolution 59/2 of 20 October 2004.

65. The Subcommittee noted that, in accordance with paragraph 18 of General Assembly resolution 59/2, the Committee on the Peaceful Uses of Outer Space should continue to consider, at its future sessions, the implementation of the recommendations of UNISPACE III until the Committee considered that concrete results had been achieved.

66. The Subcommittee expressed its satisfaction with the flexible approach that had been adopted for implementing the recommendations of UNISPACE III. By making use of multi-year workplans and establishing action teams, the Committee was able to address a wide range of issues, thereby enabling maximum implementation of the recommendations of UNISPACE III.

67. The Subcommittee noted with appreciation that a number of activities and initiatives had been undertaken by Member States in the previous year with a view to contributing to the further implementation of the recommendations of UNISPACE III. The Subcommittee also noted with appreciation the contributions made by United Nations entities and other observers of the Committee to the implementation of those recommendations.

68. The Subcommittee noted the unique contributions that the action teams had made to the efforts to implement the recommendations of UNISPACE III. Under the voluntary leadership of Governments, that innovative mechanism had made possible the participation of governmental and non-governmental entities in the follow-up to UNISPACE III, while preserving the pivotal role of Member States.

69. The Subcommittee noted with appreciation the work of the Action Team on Public Health, co-chaired by Canada and the World Health Organization (WHO), to improve public health services through the use of space technologies.

70. The Subcommittee endorsed the recommendation of the Working Group of the Whole that the Secretariat should prepare, for consideration by the Committee on the Peaceful Uses of Outer Space at its fifty-first session, a template and guidelines for use by member States and permanent observers of the Committee in preparing inputs to the contribution of the Committee to the issues to be addressed by the Commission on Sustainable Development in the period 2010-2011.

71. The Subcommittee noted with appreciation that a number of the recommendations, as set out in the Plan of Action contained in the report of the

Committee on the Peaceful Uses of Outer Space on the implementation of the recommendations of UNISPACE III (A/59/174, sect. VI.B), had already been implemented and that satisfactory progress had been made in implementing the outstanding recommendations.

72. The view was expressed that the Working Group of the Whole should focus its discussion on the implementation of the following three actions called for in the Plan of Action: maximizing the benefits of existing space capabilities for disaster management; maximizing the benefits of the use and applications of GNSS to support sustainable development; and enhancing capacity-building in space-related activities.

IV. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment

73. In accordance with General Assembly resolution 62/217, the Subcommittee continued its consideration of agenda item 7, relating to remote sensing of the Earth.

74. In the course of the discussions, delegations reviewed national and cooperative programmes on remote sensing. Examples were given of national programmes and bilateral, regional and international cooperation. The representatives of Canada, Cuba, India, Italy, Japan, Nigeria, the Philippines, Portugal, the Republic of Korea, the Russian Federation and the United States made statements under the agenda item.

75. The Subcommittee heard the following scientific and technical presentations on the item:

(a) "Turkish space technology panorama", by the representative of Turkey;

(b) "Progress in GEOSS implementation", by the observer for the secretariat of GEO;

(c) "COSMO-SkyMed: the Italian Earth observation system", by the representative of Italy;

(d) "Activities of Ukraine in the field of the design and manufacturing of remote sensing satellites", by the representative of Ukraine.

76. The Subcommittee emphasized the importance of Earth observation satellite data to support activities in a number of key development areas: geology, hydrology, oceanography, environmental monitoring, search and rescue efforts, water resource management, fishery, wetland management, agriculture, food security, forestry and deforestation, drought and desertification, land-use management, natural resource management, waste management, monitoring and controlling forest fires, weather monitoring and forecasting, monitoring global climate change and greenhouse gases, monitoring ice sheets, urban planning, rural development, early warning for disasters and humanitarian relief.

77. The Subcommittee noted with satisfaction that in December 2007 NASA had released the Land Remote Sensing Satellite (Landsat) Image Mosaic of Antarctica

(LIMA), which was the first true-colour, high-resolution satellite view of the Antarctic continent.

78. The Subcommittee noted a number of international projects in the use of satellite technologies aimed at supporting sustainable development, such as the Sentinel Asia project, the ESA Terrestrial Initiative of Global Environmental Research (TIGER), and the partnership between Brazil and China relating to the China/Brazil Earth Resources Satellite (CBERS) programme.

79. The Subcommittee noted the importance of providing, for peaceful purposes, non-discriminatory access to remote sensing data and to derived information at reasonable cost and in a timely manner and of building capacity for the adoption and use of remote sensing technology, in particular to meet the needs of developing countries.

80. The view was expressed that the free availability on the Internet of high-resolution imagery of sensitive areas was a point of concern, for strategic reasons. That delegation proposed that guidelines consistent with national policies should be developed to regulate the availability in the public domain of such sensitive data.

81. The Subcommittee encouraged further international cooperation in the use of remote sensing satellites, in particular by sharing experiences and technologies through bilateral, regional and international collaborative projects. The Subcommittee noted the important role played by organizations such as the Committee on Earth Observation Satellites, IAF and the International Society for Photogrammetry and Remote Sensing and by international entities such as the Integrated Global Observing Strategy Partnership in promoting international cooperation in the use of remote sensing technology, in particular for the benefit of developing countries.

82. The Subcommittee welcomed with satisfaction the presentation by the observer for the secretariat of GEO, at the invitation of the General Assembly in its resolution 62/217, on the progress made in the implementation of the 10-year Work Plan for a Global Earth Observation System of Systems (GEOSS), and noted that GEOSS had been designed to make tangible contributions in the following nine “societal benefit areas”: disasters, health, energy, climate, water, weather, ecosystems, agriculture and biodiversity. The Subcommittee noted with satisfaction that South Africa had hosted the GEO-IV plenary and ministerial-level meetings in Cape Town, South Africa, from 28 to 30 November 2007.

83. The Subcommittee noted with satisfaction that the European Global Monitoring for Environment and Security (GMES) programme not only fostered cooperation within Europe, but also strengthened international cooperation through such events as “Space for development: the case of GMES and Africa”, which had been held in Lisbon on 7 December 2007, prior to the European Union-Africa Summit.

V. Space debris

84. In accordance with General Assembly resolution 62/217, the Scientific and Technical Subcommittee continued its consideration of agenda item 8, “Space debris”.

85. The representatives of Brazil, Canada, China, Cuba, the Czech Republic, Germany, Greece, India, Indonesia, Italy, Japan, the Russian Federation, the United States and Venezuela (Bolivarian Republic of) made statements on the item. The observer for ESA also made a statement.

86. The Subcommittee heard the following scientific and technical presentations on the item:

(a) "Space debris outlook: USA 193", by the representative of the United States;

(b) "Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space: the German national implementation mechanism", by the representative of Germany;

(c) "A summary of the second geostationary end-of-life workshop", by the representative of France;

(d) "Global space exploration strategy", by the representative of Italy;

(e) "Space debris mitigation activities of Japan", by the representative of Japan;

(f) "United States space debris environment and policy update", by the representative of the United States;

(g) "Analysis of possibilities of the application of the effect of dispersion for space debris tracking", by the representative of Ukraine;

(h) "International scientific optical observation network (ISON) for near-Earth space surveillance: results of the first years of work and plans for the future", by the representative of the Russian Federation;

(i) "IADC Guidelines update", by the representative of the Russian Federation;

(j) "Russian activities on the space debris problem", by the representative of the Russian Federation;

(k) "Space traffic management", by the observer for the International Space University.

87. The Subcommittee had before it the note by the Secretariat on national research on space debris, safety of space objects with nuclear power sources on board and problems relating to their collision with space debris (A/AC.105/918 and Add.1), containing replies received from Member States on the issue.

88. The Subcommittee noted with great satisfaction that in paragraph 26 of its resolution 62/217, the General Assembly had endorsed the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space.[2]

89. The Subcommittee agreed that the implementation of voluntary guidelines for the mitigation of space debris at the national level would increase mutual

[2] *Official Records of the General Assembly, Sixty-second Session, Supplement No. 20* (A/62/20), paras. 117 and 118 and annex.

understanding on acceptable activities in space, thus enhancing stability in space and decreasing the likelihood of friction and conflict.

90. The Subcommittee noted that it should periodically be informed by the Inter-Agency Space Debris Coordination Committee (IADC) of any revisions of the IADC Space Debris Mitigation Guidelines in the light of evolving technologies and debris mitigation practices and noted that the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space might be amended in accordance with such revisions.

91. The Subcommittee agreed that Member States, in particular space-faring countries, should pay greater attention to the problem of collisions of space objects, including those with nuclear power sources (NPS) on board, with space debris and to other aspects of space debris, including its re-entry into the atmosphere. It noted that the General Assembly, in its resolution 62/217, had called for the continuation of national research on that question, for the development of improved technology for the monitoring of space debris and for the compilation and dissemination of data on space debris and had agreed that international cooperation was needed to expand appropriate and affordable strategies to minimize the impact of space debris on future space missions. The Subcommittee agreed that research on space debris should continue and that Member States should make available to all interested parties the results of that research, including information on practices that had proved effective in minimizing the creation of space debris.

92. The Subcommittee noted that some States were implementing space debris mitigation measures consistent with the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space and/or the IADC Guidelines or had developed their own space debris mitigation standards based on those guidelines. The Subcommittee also noted that other States were using the IADC Guidelines and the European code of conduct for space debris mitigation as references in the regulatory framework established for national space activities.

93. The Subcommittee noted with appreciation that States had adopted a number of approaches and concrete actions covering various aspects of space debris mitigation, such as the reorbiting of satellites, passivation, end-of-life operations and the development of specific software and models for space debris mitigation. The Subcommittee also noted that research was being conducted in the areas of technology for space debris observation, space debris environmental modelling and technologies to protect space systems from space debris and to limit a new generation of space debris.

94. The Subcommittee agreed that Member States and space agencies should once again be invited to provide reports on research on space debris, the safety of space objects with NPS on board and problems relating to the collision of such space objects with space debris.

95. Some delegations expressed the view that the Scientific and Technical Subcommittee should also investigate active debris removal operations, which would be particularly important for the more intensively used altitudes of the low-Earth orbit.

96. Some delegations expressed the view that a non-legally binding set of guidelines was not sufficient and that consideration should be given to bringing the

issue of space debris before the Legal Subcommittee in order to develop a legally binding instrument.

97. Other delegations expressed the view that legally binding space debris mitigation measures were not necessary because the desired outcome was the acknowledgement by the broadest number of States that space debris could and should be controlled, to the benefit of all.

98. The view was expressed that the States most responsible for the creation of space debris and the States having the capability to take action on space debris mitigation should make a greater contribution to space debris mitigation efforts than other States.

99. The view was expressed that open access to data and information on the re entry of space debris was important for disaster mitigation.

100. Some delegations expressed the view that the cooperative approach to solving emerging problems could productively serve in the future as a model for the development of other rules or guidelines addressing the need to ensure the safety of space traffic. Those delegations thus supported including on the agenda an item on the long-term sustainability of space activities.

VI. Space-system-based disaster management support

101. In accordance with General Assembly resolution 62/217, the Scientific and Technical Subcommittee considered agenda item 9, “Space-system-based disaster management support”. Pursuant to paragraph 155 of the report of the Committee on the Peaceful Uses of Outer Space on its fiftieth session, the Subcommittee requested the Working Group of the Whole, reconvened at its 683rd meeting, on 13 February, to consider the agenda item.

102. At its 695th meeting, on 21 February, the Subcommittee endorsed the report of the Working Group of the Whole (annex I), including its consideration of and its recommendations on the item on space-system-based disaster management support.

103. The representatives of Chile, Germany, Greece, India, Indonesia, Iran (Islamic Republic of), Italy, Japan, Nigeria, the Philippines, the Republic of Korea, South Africa, the United Kingdom and the United States made statements under the agenda item.

104. The Subcommittee heard the following scientific and technical presentations on the item:

(a) “Space-based disaster management support: the Indian experience”, by the representative of India;

(b) “Sentinel Asia: fighting natural disasters with space technology; towards the next step”, by the representative of Japan;

(c) “Earth system science education: extending a network of universities in support of space-based solutions for disaster management”, by the observer for the Universities Space Research Association;

(d) “The Ionosat space system for the monitoring of natural and technological disasters”, by the representative of Ukraine;

(e) “An airborne platform for emergency communications and disaster management”, by the representative of Austria;

(f) “The scientific premises of the ionospheric satellite cluster (Ionosat) project”, by the representative of Ukraine.

105. The Subcommittee had before it the report on activities carried out in 2007 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (A/AC.105/899).

106. At the 685th meeting, the Programme Coordinator of 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 2007 within the framework of UN-SPIDER and on the activities to be carried out in the period 2008-2009.

107. The Subcommittee noted with satisfaction the establishment of UN-SPIDER and the progress made in the implementation of the activities for 2007, including the inauguration of the office of UN-SPIDER in Bonn, Germany, on 29 October 2007.

108. The Subcommittee noted with appreciation that significant extrabudgetary resources had been provided by various member States and that additional member States had indicated their willingness to make cash and in-kind contributions to support the implementation of the programme. The Subcommittee also noted the commitments made by Algeria and Nigeria, and indications of commitment received from Argentina, Iran (Islamic Republic of), Morocco, Saudi Arabia, South Africa and the Syrian Arab Republic, as well as the African Regional Centre for Space Science and Technology—in French Language, located in Morocco, and the Regional Centre for Mapping of Resources for Development, located in Kenya, in the establishment of the network of regional support offices.

109. The Subcommittee agreed that UN-SPIDER should continue coordinating its activities with other, existing institutions and initiatives that promoted the use of space-based solutions for disaster risk management and with specialized agencies and programmes of the United Nations system, as well as with regional and international organizations that had a mandate in the area of disaster risk management, and agreed that UN-SPIDER should work closely with those institutions and initiatives for the benefit of developing countries, while ensuring that there was no duplication of effort between the work of UN-SPIDER and the work carried out by those institutions and initiatives.

110. Some delegations expressed the view that the future workplans of UN-SPIDER should be financed from the regular budget of the Office for Outer Space Affairs and that any extrabudgetary resources required should be provided by Member States.

111. The Subcommittee noted the activities of member States that were contributing to increasing the availability and use of space-based solutions to support disaster management. Those activities included the GMES Emergency Response Core Service; the implementation of the Tsunami Early Warning System for the Indian Ocean under the coordination of the Intergovernmental

Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization; the International Satellite System for Search and Rescue (COSPAS-SARSAT), which had access to INSAT-3A services; the Sentinel Asia project of the Asia-Pacific Regional Space Agency Forum, which, in its second phase of implementation, would enhance access to satellite data from additional Earth observation satellites; the launch of TerraSAR-X, CBERS-2B and the first two satellites in the COSMO-SkyMed constellation; 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); GEONETCast, which was a near-global, satellite-based data dissemination system; the Mesoamerican Regional Visualization and Monitoring System (SERVIR); the Famine Early Warning Systems Network (FEWS NET); and the Earthquake Readiness project of the Caribbean Disaster Emergency Response Agency.

VII. Recent developments in global navigation satellite systems

112. In accordance with General Assembly resolution 62/217, the Scientific and Technical Subcommittee considered agenda item 10, “Recent developments in global navigation satellite systems”, as a new regular item, and reviewed issues related to the International Committee on Global Navigation Satellite Systems (ICG), the latest developments in the field of GNSS and new GNSS applications.

113. The representatives of Canada, China, India, Indonesia, Italy, Japan, Malaysia, Nigeria, the Russian Federation and the United States made statements under the agenda item. The observer for the European Commission also made a statement.

114. The Subcommittee heard the following scientific and technical presentation on the item: “Update on the Indian Satellite Navigation Programme”, by the representative of India.

115. Pursuant to General Assembly resolution 62/217, the Chairman of ICG made a statement on the current and future activities of ICG.

116. The Subcommittee also heard a presentation by the representative of the Office for Outer Space Affairs, which served as executive secretariat of ICG and the Providers Forum. The Subcommittee commended the Office on the support that it continued to provide in its role as executive secretariat.

117. The Subcommittee noted with appreciation the contributions of the United States, totalling 1 million United States dollars, to the Office for Outer Space Affairs, in support of GNSS-related activities, including regional workshops and ICG and the Providers Forum.

118. The Subcommittee noted with appreciation that ICG had been established, on a voluntary basis, as an informal body to promote cooperation, as appropriate, on matters of mutual interest to its members related to civil satellite-based positioning, navigation, timing and value-added services, as well as cooperation on the compatibility and interoperability of GNSS, and to promote the use of GNSS to support sustainable development, particularly in developing countries. The Subcommittee also noted with appreciation that the establishment of ICG had been a concrete result of the implementation of the recommendations of UNISPACE III.

119. The Subcommittee noted with satisfaction that ICG had held its first meeting in Vienna, on 1 and 2 November 2006 (A/AC.105/879) and its second meeting in Bangalore, India, from 4 to 7 September 2007 (A/AC.105/901). The Subcommittee also noted that the third meeting of ICG would be held in Pasadena, United States, from 8 to 12 December 2008 and that the fourth meeting would be held in the Russian Federation in 2009.

120. The Subcommittee noted that the Providers Forum, which had been established to enhance the compatibility and interoperability of current and future regional and global navigation satellite systems, and which currently included China, India, Japan, the Russian Federation and the United States, as well as the European Community, had held its first meeting in Bangalore, India, on 4 September 2007.

121. The Subcommittee noted that the membership structure of ICG included members, associate members and observers, and that currently nine States, the European Community and 15 organizations (United Nations entities and intergovernmental and non-governmental organizations) were members of ICG. The Subcommittee further noted that participation in ICG was open to all States and entities that were providers or users of GNSS services and that were interested and willing to actively engage in ICG activities.

122. The Subcommittee agreed on the importance of international cooperation on matters related to the compatibility and interoperability of regional and global space-based positioning, navigation and timing systems, and on the importance of promoting the use of GNSS for the benefit of people worldwide, as space-based positioning, navigation and timing services were of vital importance to all economies and societies.

123. The Subcommittee also noted that an ICG information portal had been established to provide information on the activities of ICG and the Providers Forum (http://www.unoosa.org/oosa/en/SAP/gnss/icg.html).

124. The Subcommittee noted that the Global Positioning System (GPS), operated by the United States, was a dual civil-military system consisting of 30 operational satellites and that it had reached full operational capacity in 1993. The Subcommittee also noted that the United States was committed to constantly improving the accuracy and availability of GPS signals.

125. The Subcommittee noted that the Global Navigation Satellite System (GLONASS), operated by the Russian Federation, was a dual civil-military system and had been operational since 1993. The Subcommittee also noted that in 2001 the Russian Federation had approved the further development of the federal GLONASS programme and that GLONASS would achieve uninterrupted global coverage by the end of 2009.

126. The Subcommittee noted that the Compass satellite navigation system, operated by China, comprised five geostationary satellites and 30 non-geostationary satellites and was to be a global navigation satellite system. To date, China had successfully launched five demonstration satellites.

127. The Subcommittee also noted that European countries were developing two GNSS programmes: a global navigation satellite system, Galileo, and a regional navigation satellite system, the European Geostationary Navigation Overlay

Service. Galileo, jointly operated by the European Community and ESA, was planned to become fully operational in 2013.

128. The Subcommittee noted that Japan was promoting the Quasi-Zenith Satellite System (QZSS) and the Multi-functional Transport Satellite Satellite-based Augmentation System (MSAS), both of which were augmentation systems of GPS. QZSS, which consisted of satellites with highly inclined geosynchronous orbits, could transmit signals free from obstruction in urban and mountainous areas and, when used together with GPS, improved availability, enlarged the area of GPS usage and assured more accurate positioning information. The Subcommittee also noted that MSAS services had been provided by the Ministry of Land, Infrastructure, Transport and Tourism of Japan since September 2007.

129. The Subcommittee noted that the GPS-aided Geostationary Augmented Navigation System was being implemented in India and that the country was initiating an indigenously built regional system, the Indian Regional Navigation Satellite System, which would be capable of providing optimal position accuracy using a stand-alone satellite system and would comprise seven satellites: three in geostationary orbit and four in geosynchronous orbit.

130. The Subcommittee noted that the first communications satellite of Nigeria, NigComsat-1, launched in May 2007, carried a satellite-based augmentation system, implemented by the National Space Research and Development Agency of Nigeria, which enabled the African continent to benefit from GNSS applications.

131. The Subcommittee noted that a seminar on GNSS policy had been held in Malaysia in July 2007, with the objective of identifying important policy issues in GNSS to be incorporated in the national space policy of Malaysia.

132. The Subcommittee also noted that progress had been made with respect to COSPAS-SARSAT, which had celebrated its twenty-fifth anniversary in 2007. The Subcommittee noted that Canada, together with several international partners, was continuing efforts to improve the system by developing and testing the next generation of COSPAS-SARSAT, known as the Medium-Earth Orbit Search and Rescue (MEOSAR) system. The system would utilize search and rescue payloads on future global navigation satellites in medium-Earth orbit, such as GPS, GLONASS and Galileo, to improve coverage and the speed of detecting and locating 406 megahertz emergency distress beacons worldwide.

133. The Subcommittee noted that, as new space-based positioning, navigation and timing systems were emerging, it was crucial, for the benefit of all, that they be compatible and interoperable.

VIII. Use of nuclear power sources in outer space

134. In accordance with General Assembly resolution 62/217, the Scientific and Technical Subcommittee continued its consideration of agenda item 11, “Use of nuclear power sources in outer space”, under the multi-year workplan for the period 2007-2010, adopted at its forty-fourth session (A/AC.105/890, paras. 112-113 and annex II).

135. The representatives of Cuba, Nigeria, South Africa, the Russian Federation, the United States and Venezuela (Bolivarian Republic of) made statements under the agenda item.

136. The Subcommittee noted with satisfaction the progress made by the Joint Expert Group of the Scientific and Technical Subcommittee and the International Atomic Energy Agency, established at the forty-fourth session of the Subcommittee, in the development of an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications in outer space.

137. At the 683rd meeting, on 13 February, the Chairman of the Joint Expert Group, Sam A. Harbison (United Kingdom), made a statement, informing the Subcommittee of the work that had been done and was to be carried out by the Joint Expert Group under the multi-year workplan.

138. The view was expressed that the progress achieved by the Joint Expert Group demonstrated the value of combining the expertise of the Subcommittee in the use of NPS in outer space with that of IAEA in designing a nuclear safety framework.

139. The view was expressed that the Joint Expert Group should not be composed solely of experts from the countries that had traditionally dealt with the topic of the use of nuclear power sources in outer space.

140. The view was expressed that, while the development of the safety framework to regulate the use of NPS in outer space was welcome, it needed to be defined in greater detail. That delegation requested the Joint Expert Group to define more precisely the standards and parameters that would apply to the use of NPS in outer space.

141. Some delegations were of the view that it would be necessary to develop a binding instrument on the basis of the safety framework in order to prevent irresponsible and indiscriminate use of NPS in outer space.

142. The view was expressed that the safety framework would supplement the Principles Relevant to the Use of Nuclear Power Sources in Outer Space (General Assembly resolution 47/68) regarding the design, development and use of NPS in outer space and would increase the responsibility of Governments and intergovernmental organizations to comply with safety requirements related to the use of NPS in outer space.

143. Some delegations were of the view that, until the safety framework had been clearly defined and progress had been made towards more specific commitments in terms of the use of NPS in outer space, their use should be as limited as possible and comprehensive and transparent information setting out the measures taken to ensure safety should be provided for other countries. Those delegations were of the view that no justification existed for contemplating the use of NPS in near-Earth orbits, for which other sources of energy were available that were much safer and that had been proven to be efficient.

144. The view was expressed that the application of NPS to space missions was important because it could help nations solve the challenges and further the objectives of space exploration.

145. Some delegations were of the view that, given that space systems were subject to ever-increasing demands in terms of performance and capability, nuclear power would, in many cases, be the only energy source capable of meeting certain mission requirements.

146. The view was expressed that the use of fission reactors in outer space constituted a great risk for humankind and that the use of NPS in space should not be permitted unless the potential consequences for human beings and the environment had first been assessed.

147. Some delegations were of the view that the possibility of spacecraft equipped with nuclear reactors being damaged as a result of collisions with orbital debris was cause for concern, as the Earth's orbital environment could become contaminated with radioactive debris, which could be a threat to the Earth's biosphere.

148. The view was expressed that, while the use of NPS significantly enhanced space capabilities for power-intensive applications, it was important to prevent outer space from becoming a theatre of military conflict.

149. The Subcommittee noted the continuation by Member States of the NPS-based space missions Cassini-Huygens and New Horizons and the Opportunity and Spirit Mars rovers, and the plans to use NPS on the next generation rover on Mars in 2009.

150. Pursuant to General Assembly resolution 62/217, the Subcommittee, at its 683rd meeting, on 13 February, reconvened its Working Group on the Use of Nuclear Power Sources in Outer Space under the chairmanship of Sam A. Harbison (United Kingdom). The Working Group held six meetings.

151. The Subcommittee noted that, at its current session, the Working Group had considered the draft safety framework that had been prepared by the Joint Expert Group and that was contained in document A/AC.105/C.1/L.292, and that the updated text of the draft safety framework, prepared on the basis of some of the comments received from member States and revisions made by the Joint Expert Group, would be made available by the Secretariat shortly after the conclusion of the forty-fifth session of the Subcommittee as a revised version of document A/AC.105/C.1/L.292 (to be issued subsequently as document A/AC.105/C.1/L.292/Rev.1) for further comments by member States and permanent observers of the Committee.

152. The Subcommittee noted that the representative of Venezuela (Bolivarian Republic of) had disagreed with the wording of a number of the paragraphs of the preliminary draft safety framework as contained in document A/AC.105/C.1/L.292 and as revised in A/AC.105/C.1/2008/CRP.10. The Subcommittee also noted that the representative of Venezuela (Bolivarian Republic of) had expressed the hope that the Working Group would, in cooperation with Member States and the Subcommittee, be successful in establishing standards that met the essential principles of safeguarding human life and peace.

153. At its 695th meeting, on 21 February, the Subcommittee endorsed the report of the Working Group (see annex II).

IX. Near-Earth objects

154. In accordance with General Assembly resolution 62/217, the Scientific and Technical Subcommittee considered agenda item 12, "Near-Earth objects", under the multi-year workplan adopted by the Subcommittee at its forty-fourth session (A/AC.105/890, annex III). Pursuant to the workplan, in 2007, international organizations, regional bodies and others active in the field of near-Earth object research were invited to report to the Subcommittee on their activities.

155. The representatives of Canada, the Czech Republic, Japan and the United States made statements on the item.

156. The Subcommittee heard the following scientific and technical presentations on the item:

(a) "Update of work on a draft NEO protocol", by the observer for ASE;

(b) "Asteroid finder: a German small satellite mission", by the representative of Germany;

(c) "Asteroid-comet hazard problem: activities in Russia", by the representative of the Russian Federation;

(d) "International campaign for the improvement of the Apophis ephemeris", by the representative of France;

(e) "NEOs: a youth perspective", by the observer for SGAC.

157. The Subcommittee also heard a presentation on the activities carried out at the Planetary Defense Conference, held at George Washington University in Washington, D.C., from 5 to 8 March 2007, by the observer for the Aerospace Corporation, at the invitation of the Chairman of the Working Group on Near-Earth Objects.

158. The Subcommittee had before it the following documents:

(a) Note by the Secretariat on information on research in the field of near-Earth objects carried out by Member States, international organizations and other entities (A/AC.105/896);

(b) Interim report of the Action Team on Near-Earth Objects (2007-2008) (A/AC.105/C.1/L.295).

159. The Subcommittee noted that near-Earth objects were asteroids and comets with orbits that could cross the orbit of planet Earth. The Subcommittee also noted that the interest in asteroids was largely due to their scientific value as remnant debris from the inner solar system formation process, the possibility of their collision with the Earth and its potentially devastating consequences, and their possession of a wide range of natural resources.

160. The Subcommittee noted that early detection and precision tracking were the most effective tools for the management of threats posed by near-Earth objects. In that regard, the Subcommittee noted with satisfaction that a number of international teams in various countries were currently searching for, investigating and cataloguing near-Earth objects.

161. The Subcommittee noted with satisfaction that a number of institutions were investigating possibilities for the mitigation of threats posed by near-Earth objects. The Subcommittee also noted that any measures to mitigate such threats would require coordinated international efforts, as well as an increased knowledge base of the properties of near-Earth objects.

162. The Subcommittee noted that some member States had implemented or were planning to implement fly-by and exploration missions to near-Earth objects. The Subcommittee also noted past and upcoming missions investigating near-Earth objects, such as the Hayabusa spacecraft operated by Japan, the Near Earth Object Surveillance Satellite of Canada, and the Marco Polo near-Earth object sample return mission of ESA and the Japan Aerospace Exploration Agency.

163. The Subcommittee noted the significant progress achieved by the United States in reaching its target of detecting 90 per cent of all near-Earth objects greater than one kilometre in diameter. The Subcommittee noted that the United States had determined that only 136 near-Earth objects with a diameter greater than one kilometre could pose a collision hazard with the Earth and that the United States was seeking to achieve, by 2020, its target of detecting, tracking, cataloguing and characterizing 90 per cent of objects with a diameter greater than 140 metres.

164. The Subcommittee agreed that efforts to detect and track near-Earth objects should be continued and expanded at the national and international levels.

165. Pursuant to paragraph 15 of General Assembly resolution 62/217, the Subcommittee, at its 688th meeting, on 18 February, reconvened its Working Group on Near-Earth Objects, under the chairmanship of Richard Crowther (United Kingdom). The Working Group on Near-Earth Objects held three meetings.

166. At its 696th meeting, on 22 February, the Subcommittee endorsed the report of the Working Group on Near-Earth Objects (see annex III), including the amended multi-year workplan proposed by the Working Group for the period 2009-2011.

X. International Heliophysical Year 2007

167. In accordance with General Assembly resolution 62/217, the Scientific and Technical Subcommittee considered agenda item 13, “International Heliophysical Year 2007”, under the three-year workplan adopted at its forty-second session (A/AC.105/848, annex I).

168. The representatives of Brazil, Indonesia, Japan, Malaysia, the Russian Federation, Ukraine and the United States made statements on the item.

169. The Subcommittee heard the following scientific and technical presentation on the item: “IHY 2007 update”, given by the representative of the United States on behalf of the secretariat of the International Heliophysical Year.

170. The Subcommittee had before it the following:

(a) Note by the Secretariat on reports on national and regional activities related to the International Heliophysical Year 2007 (A/AC.105/C.1/L.294);

(b) Information on the continued deployment of worldwide instrument arrays and reports on national and regional activities for the International Heliophysical Year 2007 (A/AC.105/C.1/2008/CRP.6).

171. The Subcommittee noted with satisfaction that the International Heliophysical Year, which had been celebrated worldwide in 2007 and had marked the fiftieth anniversary of the International Geophysical Year of 1957, was an international programme of scientific collaboration to understand the Sun and its influence on the space environment and planets, and was therefore of great interest to Member States.

172. The Subcommittee also noted with satisfaction that, building on results obtained during International Geophysical Year 1957/1958, the International Heliophysical Year 2007 had expanded to include the study of universal processes in the solar system that affected interplanetary and space environmental conditions and their evolution, which would pave the way for safe human space travel to the Moon and planets in the future and would serve to inspire the next generation of space physicists.

173. The Subcommittee noted that the objectives of the International Heliophysical Year 2007 were:

(a) To provide benchmark measurements of the responses of the magnetosphere, the ionosphere, the lower atmosphere and the Earth's surface in order to identify global processes and drivers that affected the terrestrial environment and climate;

(b) To further the global study of the Sun-heliosphere system outwards to the heliopause in order to understand the external and historical drivers of geophysical change;

(c) To foster international scientific cooperation in the study of current and future heliophysical phenomena;

(d) To communicate the unique scientific results of the International Heliophysical Year to interested members of the scientific community and to the general public.

174. The Subcommittee noted with appreciation the progress made by Member States in the conduct of outreach, educational and research campaigns, and in the deployment of instrument arrays.

175. The Subcommittee also noted with appreciation that the United Nations Basic Space Science Initiative of the Office for Outer Space Affairs, in cooperation with the secretariat of the International Heliophysical Year, continued to support the deployment in countries throughout the world, in particular in developing countries, of arrays of small instruments such as magnetometers, radio antennas, GPS receivers and all-sky cameras, to provide global measurements of heliospheric phenomena.

176. The Subcommittee noted some of the highlights of the International Heliophysical Year 2007: two summer schools, in India and the United States, to disseminate information on space science among students from around the world, with three more such schools planned for 2008; the International Heliophysical Year Latin American summer school, to be held in Brazil in February 2008; the

International Heliophysical Year European heliophysics school, hosted by the International Centre for Theoretical Physics, to be held in Italy in October 2008; and the International Heliophysical Year Asia-Pacific summer school, to be held in China in November 2008; the release of a documentary film on the eclipse trip to India, entitled "The path to totality", by the secretariat of the International Heliophysical Year; a symposium in the Russian Federation to commemorate the fiftieth anniversary of space flight; National Science Week, held in Thailand with the participation of more then 300,000 students; and the International Heliophysical Year-Africa Space Weather Science and Education Workshop, held in Addis Ababa in November 2007, which had attracted participants from 28 African and European countries and the United States.

177. The Subcommittee noted that the third United Nations/National Aeronautics and Space Administration Workshop on Basic Space Science and the International Heliophysical Year 2007 had been co-sponsored by the Government of Japan and had been held in Tokyo in June 2007, and that two more such workshops were planned for 2008 and 2009, to be hosted by Bulgaria and the Republic of Korea respectively.

178. The Subcommittee further noted that the International School of Young Astronomers had been held in Malaysia in March 2007, with an emphasis on solar physics, in collaboration with the International Astronomical Union, and that, as a continuation of the International School of Young Astronomers programme, Malaysia would host a workshop on space-based ultraviolet-optical astronomy in June 2008, in cooperation with the Committee on Space Research.

179. The Subcommittee noted that a variety of activities had been carried out under the coordination of the National Institute of Aeronautics and Space of Indonesia, including research on solar physics and the Sun-Earth relationship undertaken by the Bandung Institute of Technology.

180. The Subcommittee also noted that most Member States had made progress in space weather programmes as part of a global partnership, with the aim of predicting space weather and its impact on the Earth system.

181. The Subcommittee agreed that the International Heliophysical Year 2007 would be discussed as a single agenda item at its forty-sixth session, in 2009, and that Member States should continue to report to the Subcommittee on their activities related to the International Heliophysical Year.

XI. Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries

182. In accordance with General Assembly resolution 62/217, the Scientific and Technical Subcommittee considered agenda item 14, "Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and

applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries", as a single issue/item for discussion.

183. The representatives of Colombia, Ecuador, Greece, Indonesia, Iran (Islamic Republic of) and Venezuela (Bolivarian Republic of) made statements on the item.

184. The Subcommittee heard a scientific and technical presentation entitled "World Radiocommunication Conference 2007: outcome related to space services", given by the observer for ITU and expressed its appreciation for the details provided. The Subcommittee invited ITU to make further reports concerning its contribution to the peaceful uses of outer space, including the use of the geostationary orbit and other orbits.

185. Some delegations reiterated the view that the geostationary orbit was a limited natural resource, which ran the risk of becoming saturated. Those delegations were of the view that the exploitation of the geostationary orbit should be rationalized and made available to all countries, irrespective of their current technical capabilities, thus giving them the opportunity to have access to the geostationary orbit under equitable conditions, taking into account in particular the needs of developing countries and the geographical position of certain countries, with the participation and cooperation of ITU. Those delegations therefore considered that the item on the geostationary orbit should remain on the agenda of the Subcommittee for further discussion, with the purpose of continuing to analyse its scientific and technical characteristics.

186. The view was expressed that, although the Subcommittee was competent to examine matters relating to the examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, ITU was the sole specialized agency of the United Nations empowered to regulate telecommunications, including the international allocation of the radio frequencies and associated orbital positions in the geostationary orbit and other orbits.

187. The view was expressed that a study of the history of occupancy of the geostationary orbit using the GEO Occupancy Analyser Tool (GOAT) had demonstrated the need to review the current mechanisms for the use of that scarce resource, for which analytical methods should be developed to measure the extent to which those mechanisms coincided with the basic principles that should govern the use of the geostationary orbit, as contained in a number of legal instruments of entities of the United Nations system, in particular those of the Committee on the Peaceful Uses of Outer Space and ITU.

188. The view was expressed that the Committee on the Peaceful Uses of Outer Space, which had the required competency, should pay greater attention to the technical, political and legal aspects of access to and use of the geostationary orbit with a view to establishing an international regime applicable to the geostationary orbit, with due regard to the interests and needs of developing countries. That delegation expressed concern that the geostationary orbit was used predominantly by the industrialized countries and noted that the Subcommittee should make regular assessments of developments in that area.

189. The view was expressed that equitable access by all nations to spectrum resources within the geostationary orbit was severely threatened by commercial operators that, under the protection of a number of Governments, over-exploited a limited strategic resource.

XII. Draft provisional agenda for the forty-sixth session of the Scientific and Technical Subcommittee

190. In accordance with General Assembly resolution 62/217, the Scientific and Technical Subcommittee considered proposals for a draft provisional agenda for its forty-sixth session, to be submitted to the Committee on the Peaceful Uses of Outer Space. Pursuant to paragraph 11 of that resolution, the Subcommittee requested the Working Group of the Whole, reconvened at its 683rd meeting, on 13 February, to consider the draft provisional agenda for the forty-sixth session of the Subcommittee.

191. The Subcommittee noted that France would propose a new item, entitled "Long-term sustainability of space activities", at the fifty-first session of the Committee on the Peaceful Uses of Outer Space, to be included on the agenda of the Committee at its fifty-second session, for consideration under a multi-year workplan (A/AC.105/C.1/2008/CRP.11). The Subcommittee further noted that the Committee could consider how its Legal and Scientific and Technical subcommittees could contribute to the multi-year workplan.

192. At its 695th meeting, on 21 February, the Subcommittee endorsed the recommendations of the Working Group of the Whole concerning the draft provisional agenda for the forty-sixth session of the Subcommittee, contained in the report of the Working Group of the Whole (see annex I).

193. The Subcommittee noted that the Secretariat had scheduled the forty-sixth session of the Subcommittee to be held from 9 to 20 February 2009.

Annex I

Report of the Working Group of the Whole

I. Introduction

1. In accordance with paragraph 13 of General Assembly resolution 62/217 of 22 December 2007, the Scientific and Technical Subcommittee, at its forty-fifth session, reconvened its Working Group of the Whole. The Working Group held seven meetings, from 13 to 21 February 2008. It considered the United Nations Programme on Space Applications, the implementation of the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III), space-system-based disaster management support and the draft provisional agenda for the forty-sixth session of the Subcommittee, to be held in 2009. At its 7th meeting, on 21 February, the Working Group adopted the present report.

2. K. Radhakrishnan (India) was elected Chairman of the Working Group of the Whole at the 682nd meeting of the Scientific and Technical Subcommittee, on 13 February. The Working Group had before it, inter alia, a list of issues for its consideration (A/AC.105/C.1/2008/CRP.9).

3. The Working Group of the Whole noted that its former Chairman, Muhammad Nasim Shah (Pakistan), had recently retired. The Working Group of the Whole expressed its deep appreciation to Mr. Shah for his leadership and dedication to the Working Group of the Whole, which he had chaired from 1991 to 2007.

II. United Nations Programme on Space Applications

4. The Working Group of the Whole had before it the report of the Expert on Space Applications (A/AC.105/900). It was noted that the Expert had supplemented her report by a statement.

5. The Working Group of the Whole noted the workshops, seminars, symposiums, training courses and long-term fellowships for in-depth training, as well as technical advisory services, that had been proposed to the Subcommittee in the report of the Expert on Space Applications (A/AC.105/900, annex II).

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

6. The Working Group of the Whole had before it the following:

(a) Status of implementation of the recommendations of UNISPACE III (A/AC.105/C.1/2008/CRP.3);

(b) Promoting greater participation of young people in space science and technology (A/AC.105/C.1/2008/CRP.4).

7. The Working Group of the Whole noted with appreciation that, since 2005, member States of the Committee, entities of the United Nations system and other organizations having permanent observer status with the Committee had successfully implemented a number of the recommendations of UNISPACE III and noted that satisfactory progress was being made in the implementation of several more of the recommendations.

8. The Working Group of the Whole welcomed the note by the Secretariat on the status of implementation of the recommendations of UNISPACE III (A/AC.105/C.1/2008/CRP.3). The Working Group agreed to consider the recommendations to be implemented on the basis of the following criteria: (a) recommendation being considered and implemented by an intergovernmental body other than the United Nations and reporting lines established with the Committee on the Peaceful Uses of Outer Space in order to keep it informed of progress of implementation; (b) consideration of recommendation by a UNISPACE III action team completed and/or consideration of recommendation by the Committee on the Peaceful Uses of Outer Space and/or its Subcommittees ongoing or completed; and (c) recommendation fully implemented.

9. The Working Group of the Whole agreed that the Secretariat would continue to request member States of the Committee, entities of the United Nations system and other organizations having permanent observer status with the Committee to report on their activities in the implementation of the recommendations of UNISPACE III, focusing on those recommendations considered not yet implemented. The replies received would be taken into account in preparing a revised status report for consideration by the Working Group during the forty-sixth session of the Subcommittee. On the basis of that report, the Working Group would consider the way forward in its consideration of the implementation of the recommendations of UNISPACE III.

10. The Working Group of the Whole welcomed the report of the Secretariat on promoting greater participation of young people in space science and technology (A/AC.105/C.1/2008/CRP.4). The Working Group recommended that member States of the Committee, entities of the United Nations system and other organizations having permanent observer status with the Committee should continue to report on their efforts to promote the education and opportunities for greater participation of youth in space-related activities.

11. The Working Group of the Whole welcomed the closer link established between the work of the Committee on the Peaceful Uses of Outer Space relating to the implementation of the recommendations of UNISPACE III and the work being carried out by the Commission on Sustainable Development. The Working Group noted that the contribution of the Committee on the Peaceful Uses of Outer Space to the work of the Commission on Sustainable Development for the thematic cluster 2008-2009 (A/AC.105/892) would be considered by the Commission at its sixteenth session, the review session of the third implementation cycle, to be held from 5 to 16 May 2008. The Working Group agreed to review, at the forty-sixth session of the Subcommittee, the contribution of the Committee to the work of the Commission on Sustainable Development for the thematic cluster 2010-2011.

12. The Working Group of the Whole requested the Secretariat to prepare, for consideration by the Committee on the Peaceful Uses of Outer Space at its fifty-first

session, a template and guidelines for use by member States and permanent observers of the Committee in preparing inputs to the contribution of the Committee to the issues to be addressed by the Commission on Sustainable Development in the thematic cluster 2010-2011. The guidelines would take into account the need to include in the report of the Committee concrete information that clearly demonstrated how space science and technology and their applications could address the thematic areas under consideration. Where appropriate, examples of regional and international success stories would be used to illustrate the usefulness of space science and technology to sustainable development.

13. The Working Group of the Whole noted with appreciation that the entities of the United Nations system, through the Inter-Agency Meeting on Outer Space Activities, would provide inputs for inclusion in the report of the Committee on the Peaceful Uses of Outer Space on its contribution to the work of the Commission on Sustainable Development for the thematic cluster 2010-2011.

IV. Space-system-based disaster management support

14. The Working Group of the Whole noted with satisfaction the progress made in terms of the activities carried out within the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER) in 2007, including the inauguration of the UN-SPIDER office in Bonn, Germany, on 29 October 2007.

15. The Working Group of the Whole also noted that the Office for Outer Space Affairs of the Secretariat was working with China to ensure the opening of a dedicated UN-SPIDER office in Beijing. The Working Group also noted that the Office for Outer Space Affairs was working with Switzerland to open a dedicated UN-SPIDER liaison office in Geneva.

16. The Working Group of the Whole further noted that the Office for Outer Space Affairs was following up on the commitments made by Algeria and Nigeria, and indications of commitment received from Argentina, Iran (Islamic Republic of), Morocco, Saudi Arabia, South Africa and the Syrian Arab Republic, as well as the African Regional Centre for Space Science and Technology—in French Language, located in Morocco, and the Regional Centre for Mapping of Resources for Development, located in Kenya, in the establishment of the network of regional support offices. It further noted that commitments to become a regional support office should be made officially through the respective Government in the case of a national institution or by the governing body in the case of a regional or international organization.

17. Some delegations expressed regret that regular budget resources had been made available to the UN-SPIDER programme for the 2008-2009 biennium. Those delegations were of the view that the UN-SPIDER programme should not receive any further regular budget resources for the biennium 2010-2011 if that would result in an increase in the total regular budget of the United Nations.

18. The Working Group of the Whole noted the regret of one delegation that the consensus reached at the fiftieth session of the Committee on the Peaceful Uses of Outer Space with regard to funding for UN-SPIDER had been broken during the

sixty-second session of the General Assembly and, as a result, UN-SPIDER had been provided with resources from the United Nations contingency fund for the biennium 2008-2009. The Working Group further noted that some delegations insisted that the future workplans of UN-SPIDER should be financed from the regular budget of the Office for Outer Space Affairs and that any extrabudgetary resources required should be provided by Member States.

19. The Working Group of the Whole agreed that the UN-SPIDER programme should work to raise the level of extrabudgetary resources (cash and in-kind) available to the programme, in addition to the contributions made by Austria, China, Germany, Indonesia, the Republic of Korea and Switzerland, with a view to ensuring its long-term implementation.

20. The Working Group of the Whole noted that the Director of the Office for Outer Space Affairs was the supervisor of UN-SPIDER and was responsible for its implementation, with the assistance of a programme coordinator, and that all UN-SPIDER staff members, as well as experts provided by Member States as non-reimbursable loans of personnel services considered "experts on mission", were ultimately answerable and accountable to the Director.

21. The Working Group of the Whole noted that the Office for Outer Space Affairs would prepare, for consideration by the Scientific and Technical Subcommittee at its forty-sixth session under the regular agenda item on space-system-based disaster management support, a progress report on the activities carried out by the UN-SPIDER programme in 2008. It further noted that the report would give special consideration to cooperation between UN-SPIDER and relevant initiatives that made available space-based information and proposed solutions for disaster risk management, and to coordination with entities of the United Nations system, as well as with regional and international organizations that had mandates in the area of disaster risk management.

V. Draft provisional agenda for the forty-sixth session of the Scientific and Technical Subcommittee

22. The Working Group of the Whole noted that, in accordance with General Assembly resolution 62/217, the Scientific and Technical Subcommittee would submit to the Committee its proposal on the draft provisional agenda for the forty-sixth session of the Subcommittee, to be held in 2009.

23. The Working Group of the Whole agreed that the Subcommittee should continue its consideration of the agenda item on the use of nuclear power sources in outer space in accordance with the multi-year workplan agreed by the Working Group on the Use of Nuclear Power Sources in Outer Space, as reflected in paragraph 7 of annex II to the report of the Scientific and Technical Subcommittee on its forty-fourth session (A/AC.105/890).

24. The Working Group of the Whole agreed that the Subcommittee should continue its consideration of the agenda item on near-Earth objects in accordance with the multi-year workplan agreed by the Working Group on Near-Earth Objects, as reflected in paragraph 7 of annex III to the report of the Scientific and Technical Subcommittee on its forty-fourth session (A/AC.105/890).

25. The Working Group of the Whole recommended that the Subcommittee should continue its consideration of the agenda item on the examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries as a single issue/item for discussion.

26. The Working Group of the Whole recommended that the Subcommittee should continue its consideration of the agenda item on the International Heliophysical Year 2007 as a single issue/item for discussion.

27. The Working Group of the Whole recommended the following draft provisional agenda for the forty-sixth session of the Scientific and Technical Subcommittee, in 2009:

1. General exchange of views and introduction of reports submitted on national activities.

2. United Nations Programme on Space Applications.

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

4. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment.

5. Space debris.

6. Space-system-based disaster management support.

7. Recent developments in global navigation satellite systems.

8. Items to be considered under workplans:

   (a) Use of nuclear power sources in outer space;

   (Work for 2009 as reflected in the multi-year workplan in paragraph 7 of annex II to the report of the Scientific and Technical Subcommittee on its forty-fourth session (A/AC.105/890))

   (b) Near-Earth objects;

   (Work for 2009 as reflected in the multi-year workplan in paragraph 11 of annex III to the present report)

9. Single issue/item for discussion: Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries.

10. Single issue/item for discussion: International Heliophysical Year 2007.

11. Draft provisional agenda for the forty-seventh session of the Scientific and Technical Subcommittee, including identification of subjects to be dealt with as single issues/items for discussion or under multi-year workplans.

28. The Working Group of the Whole agreed that the topic, chosen from a list of topics proposed by IAF for the 2009 symposium, to be organized by IAF, should be "The role of Earth observation satellites in promoting understanding of and addressing climate change concerns". The Working Group noted with appreciation that the list contained several interesting topics and encouraged member States to make technical presentations on those topics at future sessions of the Subcommittee. The Working Group agreed that the symposium should be held during the first week of the forty-sixth session of the Subcommittee.

29. The Working Group of the Whole was informed that France would propose a new item, entitled "Long-term sustainability of space activities" at the fifty-first session of the Committee on the Peaceful Uses of Outer Space, to be included on the agenda of the Committee at its fifty-second session, for consideration under a multi-year workplan (A/AC.105/C.1/2008/CRP.11).

Annex II

Report of the Working Group on the Use of Nuclear Power Sources in Outer Space

1. At its 683rd meeting, on 13 February 2008, the Scientific and Technical Subcommittee reconvened its Working Group on the Use of Nuclear Power Sources in Outer Space, under the chairmanship of Sam A. Harbison (United Kingdom of Great Britain and Northern Ireland).

2. At the 1st meeting of the Working Group, on 14 February, the Chairman recalled the tasks before the Working Group, as contained in the multi-year workplan covering the period 2007-2010 for developing an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications in outer space, which the Subcommittee had endorsed at its forty-fourth session (A/AC.105/890, paras. 112-113 and annex II).

3. The Working Group noted that the Subcommittee, at its forty-fourth session, in 2007, had endorsed the Document Preparation Profile (A/AC.105/C.1/L.289/Rev.1, annex III) and that the International Atomic Energy Agency (IAEA) had subsequently agreed to the Document Preparation Profile.

4. The Working Group noted with satisfaction that the Joint Expert Group of the Scientific and Technical Subcommittee and the International Atomic Energy Agency, established at the forty-fourth session of the Subcommittee, had conducted extensive work during 2007. The Joint Expert Group had held two drafting meetings, in June and October 2007, and had conducted intensive consultations through electronic means. That work had resulted in the preparation by the Joint Expert Group of a draft safety framework for nuclear power source applications in outer space, which had been made available to the Subcommittee at its forty-fifth session in document A/AC.105/C.1/L.292.

5. The Working Group noted that the Joint Expert Group had requested the Secretariat to prepare minutes of its meetings. The Joint Expert Group had agreed that its consent should be obtained before any such minutes, reports or other written material were made available or edited.

6. At its 1st and 2nd meetings, the Working Group considered the draft framework (A/AC.105/C.1/L.292) and submitted to the Joint Expert Group comments provided by member States.

7. The Working Group noted that the Joint Expert Group had updated the text of the draft framework, based on discussions that had taken place in the Joint Expert Group during the forty-fifth session of the Subcommittee, as well as on some of the comments received from member States. At its 3rd, 4th and 5th meetings, the Working Group considered the text of the updated draft framework (A/AC.105/C.1/2008/CRP.10). For those meetings, interpretation services were made available to the Working Group.

8. The Working Group noted that the representative of Venezuela (Bolivarian Republic of) had disagreed with the wording of a number of the paragraphs of the preliminary draft safety framework as contained in A/AC.105/C.1/2008/CRP.10.

9. The Working Group noted the need for future revisions of the draft framework proposed by the Joint Expert Group to be made available to delegations in all official languages of the United Nations prior to their being considered in the Working Group. The Working Group requested the Secretariat to explore potential mechanisms for accomplishing this at future meetings of the Working Group.

10. The Working Group considered the work done and to be carried out under its multi-year workplan and recommended the following:

(a) That the Secretariat be requested to translate the text of the updated draft framework (A/AC.105/C.1/2008/CRP.10) into all official languages of the United Nations and to make it available as a revised version of document A/AC.105/C.1/L.292 (to be issued subsequently as document A/AC.105/C.1/L.292/Rev.1);

(b) That the text of the revised draft framework, to be contained in document A/AC.105/C.1/L.292/Rev.1, be sent to member States and permanent observers of the Committee for their comments, to be submitted to the Joint Expert Group by 1 May 2008.

11. The Working Group noted the plan of the Joint Expert Group to submit document A/AC.105/C.1/L.292/Rev.1 to the IAEA secretariat for consideration by the four IAEA safety standards committees and the Commission on Safety Standards of IAEA, prior to its submission to IAEA member States for their comments, and the subsequent review of those comments.

12. The Working Group noted the following tentative schedule of meetings of the Joint Expert Group for the year 2008: 9-11 June and 21-23 October 2008. In that connection, the Working Group noted that the need for any or all of those meetings and their exact timing would be transmitted by the Secretariat to all participants in the Joint Expert Group.

13. The Working Group met with representatives of the Secretariat and agreed on the following actions:

(a) The latest version of the draft framework, as agreed upon by the Joint Expert Group at its meeting held during the forty-fifth session of the Subcommittee, would be used as the English-language version of the revised draft framework, to be issued subsequently as document A/AC.105/C.1/L.292/Rev.1;

(b) The Secretariat would provide a version of document A/AC.105/C.1/L.292/Rev.1 showing tracked changes to facilitate the process of establishing terminology (including a translation glossary) to be used by the Joint Expert Group and the Secretariat;

(c) Representatives of the Secretariat would attend future meetings of the Joint Expert Group to jointly establish terminology, including a translation glossary, to be used by both the Joint Expert Group and the Secretariat in preparing future versions of the revised draft framework.

14. The Working Group expressed its appreciation to the Secretariat for its support in organizing the Joint Expert Group meetings, ensuring the timely distribution of documents and collection of review comments and generally promoting an efficient process for preparing the draft framework.

15. The Working Group also expressed its gratitude to the Secretariat for meeting with the Joint Expert Group to discuss approaches for editing and translating the framework in a manner ensuring a technically and editorially sound product.

16. At its 6th meeting, on 21 February, the Working Group adopted the present report.

Annex III

Report of the Working Group on Near-Earth Objects

1. Pursuant to paragraph 15 of General Assembly resolution 62/217 of 22 December 2007, the Scientific and Technical Subcommittee, at its forty-fifth session, reconvened its Working Group on Near-Earth Objects. The Working Group held three meetings, from 18 to 22 February 2008.

2. Richard Crowther (United Kingdom of Great Britain and Northern Ireland) was elected Chairman of the Working Group on Near-Earth Objects at the 688th meeting of the Subcommittee, on 18 February 2008.

3. In accordance with the workplan under the item on near-Earth objects (A/AC.105/890, annex III), the Working Group considered:

(a) Intersessional work related to near-Earth objects and reports submitted in response to the annual request for information on near-Earth object activities;

(b) Presentations on national, regional and international collaborative activities for the observation and analysis of near-Earth objects;

(c) The interim report of the Action Team on Near-Earth Objects (2007-2008) (A/AC.105/C.1/L.295).

4. The Working Group had before it a note by the Secretariat on information on research in the field of near-Earth objects carried out by Member States, international organizations and other entities (A/AC.105/896).

5. The Working Group noted with appreciation that the National Aeronautics and Space Administration of the United States of America intended to upgrade the Minor Planet Center to provide more robust and accessible near-Earth object data-processing capabilities. Given the single-point nature of the Minor Planet Center and its archive, the Working Group encouraged international cooperation for the establishment of parallel nodes for near-Earth object data-processing, archiving and orbit trajectory prediction in order to ensure the preservation of critical data, even in the event of catastrophic incidents, and to provide reliable information on near-Earth objects to all Member States.

6. The Working Group noted with satisfaction the work of the Action Team on Near-Earth Objects, as reflected in the interim report of the Action Team (A/AC.105/C.1/L.295).

7. The Working Group noted that the work accomplished on near-Earth objects in the intersessional period had resulted in important contributions to international cooperation in that area. In that context, the Working Group noted that international conferences such as the forthcoming conference entitled “100 years since the Tunguska phenomenon: past, present and future”, to be hosted by the Russian Academy of Sciences in Moscow from 26 to 28 June 2008, provided opportunities to raise awareness among decision makers about the threat posed by near-Earth objects and to promote further cooperation.

8. The Working Group encouraged the Action Team on Near-Earth Objects to publicize the results of its near-Earth object activities as widely as possible,

especially in the countries most likely to be affected by the impact of near-Earth objects. In that regard, the Working Group encouraged the Action Team to provide information on its activities at the Third African Leadership Conference on Space Science and Technology for Sustainable Development, to be held in Algeria in 2009, in order to benefit from African contributions to raising awareness, both within the region and globally, of the threats posed by near-Earth objects.

9. The Working Group noted that international cooperation and coordination in improving the Apophis ephemeris was important for obtaining a better understanding of the threat to the Earth posed by the Apophis asteroid. The Working Group further noted that the period leading up to 2012 presented the optimal opportunity to carry out international activities in that regard.

10. The Working Group heard a statement by the observer for the Association of Space Explorers (ASE), at the invitation of the chairman of the Working Group, on the work planned and carried out by ASE in furthering the intersessional work of the Action Team on Near-Earth Objects under the item, in accordance with the multi-year workplan of the Working Group.

11. The Working Group noted that member States had held informal consultations during the forty-fifth session of the Subcommittee, from 18 to 20 February, in order to consider ways to further the work of the Working Group and to enhance the multi-year workplan for the agenda item on near-Earth objects. In that regard, the Working Group reviewed its multi-year workplan (A/AC.105/C.1/2008/CRP.12) and recommended that the Subcommittee continue to consider the item on near-Earth objects in accordance with the following, new multi-year workplan:

2009 Consider the reports submitted in response to the annual request for information on near-Earth object activities and continue intersessional work. Continue to review policies and procedures related to the handling of the NEO threat at the international level and consider drafting international procedures for handling the NEO threat. Work within the framework of the International Year of Astronomy 2009 to raise awareness of the NEO threat. Prepare an updated interim report of the Action Team on Near-Earth Objects.

2010 Consider the reports submitted in response to the annual request for information on near-Earth object activities and continue intersessional work. Continue the work begun during the intersessional period on drafting international procedures for handling the NEO threat and seek agreement on those procedures. Review progress on international cooperation and collaboration on NEO observations. Facilitate, for the purpose of NEO threat detection, a more robust international capability for the exchange, processing, archiving and dissemination of data. Prepare an updated interim report of the Action Team on Near-Earth Objects.

2011 Consider the reports submitted in response to the annual request for information on near-Earth object activities and continue intersessional work. Finalize the agreement on international procedures for handling the NEO threat and engage international stakeholders. Review progress on international cooperation and collaboration on NEO observations and on the capability for the exchange, processing, archiving and dissemination of data for the purpose of NEO threat detection. Consider the final report of the Action Team on Near-Earth Objects.

12. At its 3rd meeting, on 22 February 2008, the Working Group adopted the present report.