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Report of the Scientific and Technical Subcommittee on its forty-first session, held in Vienna from 16 to 27 February 2004

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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-first session at the United Nations Office at Vienna from 16 to 27 February 2004 under the chairmanship of Dumitru-Dorin Prunariu (Romania).
2. The Subcommittee held 19 meetings.

A. Attendance

3. Representatives of the following member States of the Committee attended the session: Algeria, Argentina, Australia, Austria, Brazil, Bulgaria, Canada, Chile, China, Colombia, Cuba, Czech Republic, Ecuador, Egypt, France, Germany, Greece, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Italy, Japan, Kazakhstan, Kenya, Malaysia, Mexico, Morocco, Netherlands, Nigeria, Pakistan, Peru, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Slovakia, South Africa, Spain, Sweden, Syrian Arab Republic, Turkey, Ukraine, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Venezuela and Viet Nam.
4. At the 599th meeting, on 16 February, the Chairman informed the Subcommittee that requests had been received from Angola, Israel, the Libyan Arab Republic, Switzerland and Thailand 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: secretariat of the International Strategy for Disaster Reduction, United Nations Educational, Scientific and Cultural Organization (UNESCO), International Telecommunication Union (ITU), World Meteorological Organization (WMO) and International Atomic Energy Agency (IAEA).
6. The session was also attended by observers for the Committee on Earth Observation Satellites (CEOS), the Committee on Space Research (COSPAR), the European Association for the International Space Year (EURISY), the European Space Agency (ESA), the International Academy of Astronautics (IAA), the International Astronautical Federation (IAF), the International Astronomical Union (IAU), the International Law Association (ILA), the International Mobile Satellite Organization (IMSO), the International Society for Photogrammetry and Remote Sensing (ISPRS), the International Space University (ISU), the Organisation for Economic Cooperation and Development (OECD) and the Space Generation Advisory Council (SGAC).
7. A list of the representatives of States, United Nations entities and other international organizations attending the session is contained in document A/AC.105/C.1/INF/33.

B. Adoption of the agenda

8. At its 599th meeting, on 16 February 2004, 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 to 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. Use of nuclear power sources in outer space.
10. Space-system-based telemedicine.
11. Examination of the physical nature and technical attributes of the geostationary orbit and of its utilization and applications, including, inter alia, 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.
12. Implementation of an integrated, space-based global natural disaster management system.
13. Solar-terrestrial physics.
14. Draft provisional agenda for the forty-second session of the Scientific and Technical Subcommittee.
15. Report to the Committee on the Peaceful Uses of Outer Space.

C. Documentation

9. A list of the documents that were before the Subcommittee is provided in annex I to the present report.

D. Election of the Chairman

10. At the 599th meeting, on 16 February, Dumitru-Dorin Prunariu (Romania) was elected Chairman of the Subcommittee for a two-year term of office.

E. General statements

11. The Subcommittee welcomed the election of Dumitru-Dorin Prunariu (Romania) as its new Chairman and expressed its gratitude to Karl Doetsch (Canada), its former Chairman, for his outstanding achievements during his tenure, in particular in establishing a mechanism to implement the recommendations of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE III).¹

12. The Subcommittee offered its congratulations to China for the success of its first manned space mission. It was noted that China was the third country, and the first developing country, to achieve such a capability.

13. The Subcommittee also congratulated the United States and ESA for the recent success of their missions to Mars.

14. The Subcommittee noted that the above-mentioned achievements by China, the United States and ESA would contribute to further promoting the peaceful uses of outer space.

15. Statements were made by representatives of the following member States during the general exchange of views: Argentina, Austria, Brazil, Canada, Chile, China, Colombia, Cuba, Czech Republic, France, Germany, Hungary, India, Indonesia, Iran (Islamic Republic of), Italy, Japan, Mexico, Morocco, Nigeria, Pakistan, Republic of Korea, Romania, Russian Federation, South Africa, Syrian Arab Republic, Turkey, Ukraine, United Kingdom and United States. The representative of Colombia made a statement on behalf of the States Members of the United Nations that are members of the Group of Latin American and Caribbean States. The delegate of Thailand made a general statement. General statements were also made by the observers for UNESCO and WMO. Statements were also made by the observers for COSPAR, EURISY, IAF, IAU, ISPRS and ISU.

16. The Subcommittee heard the following technical presentations under the general exchange of views:

- (a) "Algerian Space Programme", by the representative of Algeria;
- (b) "FIDAE 2004: International Air and Space Fair", by the representative of Chile;
- (c) "Introduction of Japan Aerospace Exploration Agency and its activity", by the representative of Japan;
- (d) "A renewed spirit of discovery: the United States vision for space exploration", by the representative of the United States;
- (e) "Mars exploration", by the representative of ESA.

17. At the 599th meeting, on 16 February, the Chairman made a statement outlining the work of the Subcommittee at its current session and reviewing space activities over the past year, including important advances that had been made as a result of international cooperation.

18. Also at the 599th meeting, the Director of the Office for Outer Space Affairs of the Secretariat made a statement reviewing the work programme of the Office.

19. The Subcommittee noted with appreciation that the Government of Italy had provided an associate expert to assist the Office for Outer Space Affairs in carrying out its work.

F. National reports

20. The Subcommittee took note with appreciation of the reports submitted by Member States (A/AC.105/816 and A/AC.105/C.1/2004/CRP.4 and Add.1) and considered by the Subcommittee under agenda item 4, "General exchange of views and introduction to reports submitted on national activities". The Subcommittee recommended that the Secretariat continue to invite Member States to submit annual reports on their space activities.

G. Symposium

21. Pursuant to General Assembly resolution 58/89 of 9 December 2003, a symposium on the theme "Smaller size, wider use: small satellite applications in agriculture, health and human security" was held on 16 and 17 February 2004 to strengthen the partnership of the Subcommittee with industry. The symposium was moderated by Mr. Prunariu.

22. The presentations to the symposium included the following: "Micro-satellite development programmes: benefits from the South African experience", by S. Mostert of Sun Space and Information Systems (Pty) Ltd.; "Small satellite technology developments: transforming challenges into opportunities", by A. Sabirin Arshad of Astronautic Technology Sdn. Bhd.; "Small satellite applications in Chile: a case study; assessment of land use changes using FASAT-B, SAC-C and CBERS satellites", by C. Patillo of the Centro de Estudios en Percepción Remota y SIG; "PROBA as a micro-satellite case study", by D. Bernaerts of Verhaert Design and Development; "Italian experience in small satellite missions", by G. D. Morea of Carlo Gavazzi Space SpA.; and "Small satellite applications for environmental monitoring", by A. Movlyav of Sovinform Sputnik. The presentations were followed by a panel discussion on the theme "How industry can best expand the use of small satellites in the areas of agriculture, health, human security and other fields related to sustainable development for the benefit of developing countries".

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

23. The Subcommittee noted with satisfaction that the Inter-Agency Meeting on Outer Space Activities had held its twenty-fourth session at the headquarters of WMO in Geneva from 21 to 23 January 2004. The report of the Meeting on its deliberations (A/AC.105/818) 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 2004-2005 (A/AC.105/822) were before the Subcommittee. The Subcommittee noted that the next session of the Inter-Agency Meeting would be held in Vienna in late January 2005.

24. The Subcommittee noted with appreciation that, immediately following its twenty-fourth session, the Inter-Agency Meeting had held its first open informal session on 23 January 2004 to which representatives of member States of the Committee on the Peaceful Uses of Outer Space had been invited. The open session discussed the theme "Education and training in space-related areas: challenges and opportunities in the United Nations system". The Subcommittee noted that member States of the Committee had been invited to propose topics for discussion for the next open session, to be held in 2005, from which the entities of the United Nations system that were members of the Meeting would select a theme.

25. The Subcommittee noted that the Inter-Agency Meeting had compiled a list of major space-related initiatives and programmes of the entities of the United Nations system that responded to specific recommendations contained in the Plan of Implementation of the World Summit on Sustainable Development² (see A/AC.105/C.1/2004/CRP.3). When integrated with a similar list containing space-related activities of the member States of the Committee, the contents of the two lists would serve as a useful tool for policy makers, end-users and providers of space capability who would be implementing, or were planning to implement, actions called for in the Plan of Implementation.

26. The Subcommittee noted that some entities of the United Nations system had participated in project activities of the Global Monitoring for Environment and Security (GMES) initiative of the European Commission and ESA, but had not been involved at the policy level. The Subcommittee noted the agreement of the Inter-Agency Meeting that it would be beneficial if United Nations entities with competence in areas relevant to initiatives such as GMES were consulted.

27. The Subcommittee noted that the World Conference on Disaster Reduction would be held in Kobe, Japan, from 18 to 22 January 2005. The Subcommittee also noted that the secretariat of the International Strategy for Disaster Reduction had recommended that the Office for Outer Space Affairs be entrusted with the coordination of a policy message to be delivered about the usefulness of space applications for disaster reduction at the Conference.

28. The Subcommittee noted the agreement of the Inter-Agency Meeting that it was important to create, with the participation of members of the Committee, inventories on equipment, education and training materials, satellite data sets and other capacity-building resources provided by United Nations entities, so that future technical cooperation projects or other development activities could build upon the installed capacity, in particular for the benefit of developing countries.

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

29. After considering the various items before it, the Subcommittee, at its 617th meeting, on 27 February 2004, 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

30. In accordance with General Assembly resolution 58/89, the Scientific and Technical Subcommittee continued its consideration of agenda item 5, “United Nations Programme on Space Applications”.

31. At the 603rd meeting, on 18 February, the Expert on Space Applications made a statement outlining the activities carried out and planned under the United Nations Programme on Space Applications.

32. The representatives of Canada, Germany, India, Indonesia, Japan and the United States made statements under the agenda item.

33. The Subcommittee heard a presentation by the representative of the Russian Federation on the “Youth Space Education Programme in Russia”.

34. In accordance with General Assembly resolution 58/89, the Subcommittee, at its 603rd meeting, on 18 February, reconvened the Working Group of the Whole, under the chairmanship of Muhammad Nasim Shah (Pakistan). The Working Group of the Whole held 11 meetings, from 18 to 27 February. At its 11th meeting, on 27 February, the Subcommittee endorsed the report of the Working Group of the Whole, which is contained in annex II to the present report.

A. Activities of the United Nations Programme on Space Applications

35. The Subcommittee had before it the report of the Expert on Space Applications (A/AC.105/815). The Subcommittee noted that the United Nations Programme on Space Applications for 2003 had been carried out satisfactorily and commended the work accomplished by the Expert in that regard.

36. The Subcommittee noted with appreciation that, since its previous session, additional resources for 2003 had been offered by various Member States and organizations and had been acknowledged in the report of the Expert (A/AC.105/815, paras. 53 and 54).

37. The Subcommittee expressed its continued 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 the activities with the highest priority. It noted that the United Nations Programme on Space Applications was the priority activity of the Office for Outer Space Affairs.

38. The Subcommittee noted that the United Nations Programme on Space Applications was assisting developing countries and countries with economies in transition in participating in and benefiting from space-related activities as proposed in the recommendations of UNISPACE III, in particular those contained in “The Space Millennium: Vienna Declaration on Space and Human Development”.³

39. The Subcommittee noted that the activities of the United Nations Programme on Space Applications were aimed at promoting, through regional and international cooperation, the use of space science and technology and their applications for sustainable economic and social development in developing countries by raising the

awareness of decision makers of the cost-effectiveness and additional benefits to be obtained; establishing or strengthening the capacity of developing countries to use space technology; and strengthening outreach activities to increase awareness of the benefits obtained.

40. The Subcommittee noted that, in addition to the United Nations conferences, training courses, workshops and symposiums planned for 2004 (see para. 46 below), other activities of the Programme in 2004 would place emphasis on:

(a) Supporting education and training to build capacity in developing countries, in particular through the regional centres for space science and technology education;

(b) Providing technical assistance to promote the use of space technologies in development programmes, in particular by continuing to support or initiate pilot projects as follow-up to past activities of the Programme;

(c) Enhancing access to space-related materials and other information for dissemination to the general public and carrying out outreach activities to promote the participation of youth in space activities.

1. Year 2003

United Nations conferences, training courses, workshops and symposiums

41. With regard to the activities of the United Nations Programme on Space Applications carried out in 2003, the Subcommittee expressed its appreciation to the following:

(a) The Government of Sweden and ESA, for co-sponsoring the Thirteenth United Nations/Sweden International Training Course on Remote Sensing Education for Educators, hosted by Stockholm University and Metria Satellus AB, in Stockholm and Kiruna, Sweden, from 5 May to 13 June;

(b) The Government of Romania, ESA and the Centre national d'études spatiales (CNES) of France, for co-sponsoring the United Nations Regional Workshop on the Use of Space Technology for Disaster Management for Europe, hosted by the Romanian Space Agency, in Poiana-Brasov, Romania, from 19 to 23 May;

(c) The Government of the Syrian Arab Republic, ESA and CNES, for co-sponsoring the United Nations/European Space Agency Workshop on Remote Sensing Applications and Education, hosted by the General Organization of Remote Sensing of the Syrian Arab Republic, in Damascus, from 29 June to 3 July;

(d) The Government of Thailand, for co-sponsoring the United Nations/Thailand Workshop on the Contribution of Space Communication Technology to Bridging the Digital Divide, hosted by the Geo-Informatics and Space Technology Development Agency of Thailand, in Bangkok, from 1 to 5 September;

(e) The Government of Austria, the State of Styria, the city of Graz, and ESA, for co-sponsoring the United Nations/Austria/European Space Agency Symposium on Space Applications for Sustainable Development: Supporting the Plan of Implementation of the World Summit on Sustainable Development, hosted

by the Institute of Space Research and Joanneum Research, in Graz, Austria, from 8 to 11 September;

(f) The Government of Germany, ESA, IAF and UNESCO, for co-sponsoring the United Nations/International Astronautical Federation Workshop on Education and Capacity-Building in Space Technology for the Benefit of Developing Countries, with an Emphasis on Remote Sensing, hosted by the University of Bremen, in Bremen, Germany, from 25 to 27 September;

(g) The Government of Germany and the Subcommittee on Small Satellites for Developing Nations of IAA, for co-sponsoring the Fourth United Nations/International Academy of Astronautics Workshop on Small Satellites in the Service of Developing Countries: a Contribution to Sustainable Development, hosted by IAF, in Bremen, Germany, on 30 September;

(h) The Government of the Republic of Korea, for co-sponsoring the United Nations/Republic of Korea Workshop on Space Law on the theme "United Nations treaties on outer space: actions at the national level", hosted by the Korean Aerospace Research Institute, in Daejeon, Republic of Korea, from 3 to 6 November;

(i) The Government of the United States and the Austrian Space Agency, for co-sponsoring the United Nations/United States of America International Workshop on the Use and Applications of Global Navigation Satellite Systems, in Vienna, from 8 to 12 December;

(j) The host countries of the regional centres for space science and technology education affiliated with the United Nations for the organization of workshops and training courses during 2003.

Long-term fellowships for in-depth training

42. The Subcommittee expressed appreciation to ESA for having offered two fellowships for 2003 for research in remote sensing technology at the European Space Research Institute in Frascati, Italy.

43. The Subcommittee noted that it was important to increase the opportunities for in-depth education in all areas of space science, technology and applications projects through long-term fellowships and urged Member States to make such opportunities available at their relevant institutions.

Technical advisory services

44. The Subcommittee took note of the following technical advisory services provided under the United Nations Programme on Space Applications in support of activities and projects promoting regional and global cooperation in space applications (see A/AC.105/815, paras. 40-49):

(a) Providing assistance to the Asia-Pacific Satellite Communications Council in its efforts to promote development and cooperation in satellite communications in Asia and the Pacific;

(b) Collaboration with Joanneum Research of Graz, Austria, in conducting a live, interactive demonstration of satellite-based telemedicine during the forty-sixth session of the Committee on the Peaceful Uses of Outer Space, in 2003;

(c) Providing technical advice to the Preparatory Commission for the Comprehensive Nuclear-Test-Ban Treaty Organization in preparing draft recommendations for participants at the Fifth Annual Joint Global Communications Infrastructure Evaluation Workshop, held in Vienna from 20 to 23 October 2003;

(d) Cooperation with the pro tempore secretariat of the Fourth Space Conference of the Americas in planning a number of activities to implement the Plan of Action of the Conference, including a workshop on the use of global navigation satellite systems, to be held in Colombia in 2004 for the benefit of the Latin American and Caribbean region;

(e) Providing technical assistance to the Fundación Instituto de Ingeniería of the Ministry of Science and Technology of Venezuela, in considering a few institutional models for the establishment of a space entity to coordinate space activities in Venezuela;

(f) Assisting the Asociación Chilena del Espacio in organizing the Space Camp of the Americas from 4 to 18 January 2004;

(g) Providing the chairperson of the Ad Hoc Working Group on Earth Observation Education and Training of CEOS;

(h) Supporting the joint United Nations/ESA follow-up programme on the use of remote sensing technology in sustainable development. The Programme is also collaborating with ESA in carrying out a project in Africa on the development of an information system for determining, monitoring and assessing flood areas, together with the establishment of an inventory of superficial waters in the Nakambé river basin of Burkina Faso;

(i) Participation in the work of the Ad Hoc Group on Earth Observations, as a member of its subgroup on capacity-building.

2. Year 2004

Conferences, training courses, workshops and symposiums within the framework of the United Nations Programme on Space Applications

45. The Subcommittee expressed its appreciation to the United States Government for jointly organizing with the Office for Outer Space Affairs the United Nations/United States of America Training Course on Satellite-Aided Search and Rescue, held in Miami, United States, from 2 to 6 February.

46. The Subcommittee recommended approval of the following programme of training courses, workshops and symposiums, to be organized jointly by the Office for Outer Space Affairs, host Governments and other entities in 2004:

(a) United Nations/Sudan Workshop on the Use of Space Technology for Natural Resource Management, Environmental Monitoring and Disaster Management, to be held in Khartoum from 4 to 8 April;

(b) United Nations/Islamic Republic of Iran Workshop on the Use of Space Technology for Environmental Security, Disaster Rehabilitation and Sustainable Development, to be held in Tehran from 8 to 12 May;

(c) Twelfth United Nations/European Space Agency Workshop on Basic Space Science, to be held in Beijing from 24 to 28 May;

(d) Fourteenth United Nations/Sweden International Training Course on Remote Sensing Education for Educators, to be held in Stockholm and Kiruna, Sweden, from 3 May to 11 June;

(e) United Nations/Space and Upper Atmosphere Research Commission Regional Seminar on Monitoring and Protection of the Natural Environment: Educational Needs and Experience Gained from United Nations/Sweden International Training Courses on Remote Sensing Education for Educators, to be held in Islamabad in September;

(f) United Nations/Saudi Arabia Regional Workshop on the Use of Space Technology for Disaster Management for Western Asia, to be held in Riyadh in October;

(g) United Nations/Austria/European Space Agency Symposium on Water for the World: Space Solutions for Water Management, to be held in Graz, Austria, from 13 to 16 September;

(h) United Nations/International Astronautical Federation Workshop on the Use of Space Technology for the Benefit of Developing Countries, to be held in Vancouver, Canada, in October;

(i) Fifth United Nations/International Academy of Astronautics Workshop on Small Satellites in the Service of Developing Countries, to be held in Vancouver, Canada, in October;

(j) United Nations/European Space Agency/Austria/Switzerland Workshop on Remote Sensing in the Service of Sustainable Development in Mountain Areas, to be held in Kathmandu from 18 to 22 October;

(k) United Nations International Workshop on the Use of Space Technology for Disaster Management, to be held in Oberpfaffenhofen, Germany, in October;

(l) United Nations Workshop on Space Law, to be held in Rio de Janeiro, Brazil, in November;

(m) United Nations International Meeting on the Use and Applications of Global Navigation Satellite Systems, to be held in Vienna in November/December;

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

B. International space information service

47. The Subcommittee noted with satisfaction that the fifteenth in the series of documents containing selected papers from the activities of the Programme, entitled *Seminars of the United Nations Programme on Space Applications*,⁴ had been issued. The Subcommittee also noted with satisfaction the publication of *Highlights in Space 2003*,⁵ 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.

48. The Subcommittee noted with satisfaction that the Secretariat had continued to enhance the International Space Information Service and the web site of the Office

for Outer Space Affairs (www.oosa.unvienna.org), which contained, among other things, a regularly updated index of objects launched into outer space. The Subcommittee also noted with satisfaction that the Secretariat was maintaining a web site on the coordination of outer space activities within the United Nations system (www.uncosa.unvienna.org).

C. Regional and interregional cooperation

49. The Subcommittee noted with appreciation the continuing efforts made under the United Nations Programme on Space Applications, in accordance with General Assembly resolution 45/72 of 11 December 1990, in leading an international effort to establish regional centres for space science and technology education in existing national or regional educational institutions in developing countries. The Subcommittee also noted that, once established, each centre could expand and become part of a network that could cover specific programme elements in established institutions related to space science and technology in each region.

50. The Subcommittee recalled that the General Assembly, in its resolution 50/27 of 6 December 1995, had endorsed the recommendation of the Committee that the centres be established on the basis of affiliation with the United Nations as early as possible and that such affiliation would provide the centres with the necessary recognition and strengthen the possibilities of attracting donors and of establishing academic relationships with national and international space-related institutions.

51. The Subcommittee 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. The Subcommittee noted that all the regional centres had entered into an affiliation agreement with the Office for Outer Space Affairs.

52. The Subcommittee also noted that the highlights of the activities of the regional centres supported under the Programme in 2003 and planned activities for 2004 and 2005 were included in the report of the Expert on Space Applications (A/AC.105/815, annex III).

53. The Subcommittee noted with satisfaction the initiative of the Chilean Space Agency, in cooperation with the Office for Outer Space Affairs, to hold in Santiago de Chile on 1 and 2 April 2004, in the context of the International Air and Space Fair, an International Conference on Space and Water: Towards Sustainable Development and Human Security.

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

54. In accordance with General Assembly resolution 58/89, the Scientific and Technical Subcommittee continued its consideration of agenda item 6, on implementation of the recommendations of UNISPACE III. Pursuant to paragraph 19 of Assembly resolution 58/89, the Subcommittee requested the

Working Group of the Whole, established at the 603rd meeting of the Subcommittee, on 18 February, to consider the issue.

55. At its 617th meeting, on 27 February, the Subcommittee endorsed the recommendations of the Working Group of the Whole concerning implementation of the recommendations of UNISPACE III, as contained in the report of the Working Group (see annex II).

56. The representatives of Austria, Canada, China, France, Greece, India, Iran (Islamic Republic of), Italy, Japan, Malaysia, Mexico, Portugal and the United Kingdom made statements under the item.

57. The Subcommittee heard a presentation by the representative of ESA on "TIGER initiative: water resources management in Africa".

58. The Subcommittee had the following documents before it for its consideration:

(a) International cooperation in the peaceful uses of outer space: activities of Member States (A/AC.105/816 and Add.1 and A/AC.105/C.1/2004/CRP.4 and Add.1);

(b) International cooperation in the peaceful uses of outer space: activities of international organizations that have contributed to implementing the recommendations of UNISPACE III (A/AC.105/819 and A/AC.105/C.1/2004/CRP.5);

(c) Draft report of the Committee on the Peaceful Uses of Outer Space on the implementation of the recommendations of UNISPACE III: chapters I-IV and annexes I-IV (A/AC.105/C.1/L.272 and Add.1-4 and A/AC.105/C.1/2004/CRP.17);

(d) Summary of the findings, recommendations and actions taken by the Action Team on Public Health (A/AC.105/C.1/2004/CRP.6);

(e) Draft report on the implementation of the recommendations of UNISPACE III: comments received from member States of the Committee on the Peaceful Uses of Outer Space and United Nations entities (A/AC.105/C.1/2004/CRP.9 and Add.1);

(f) Correlation between the recommendations of UNISPACE III and actions called for in the United Nations Millennium Declaration, the Plan of Implementation of the World Summit on Sustainable Development and the Plan of Action of the World Summit on the Information Society (first phase) (A/AC.105/C.1/2004/CRP.10);

(g) Results of the survey on the level of priority to be given to the recommendations of UNISPACE III that are still to be addressed (A/AC.105/C.1/2004/CRP.11);

(h) Summary of findings, recommendations and actions taken by the Action Team on Increasing Awareness (A/AC.105/C.1/2004/CRP.15).

59. The Subcommittee noted with appreciation the efforts made by the chairpersons and members of the 12 action teams established by the Committee on the Peaceful Uses of Outer Space at its forty-fourth session and by the Scientific and Technical Subcommittee at its fortieth session, in making progress in the implementation of the recommendations of UNISPACE III for which they were responsible.

60. The Subcommittee noted with appreciation that the following action teams had submitted their final reports:

	<i>Recommendation^a</i>	<i>Chair(s)</i>	<i>Orally presented to the Subcommittee</i>	<i>Final reports submitted</i>
1.	Develop a comprehensive, worldwide environmental monitoring strategy	Islamic Republic of Iran, Russian Federation and Syrian Arab Republic	Islamic Republic of Iran	A/AC.105/C.1/L.275
2.	Improve the management of the Earth's natural resources	India	India	A/AC.105/C.1/2004/CRP.12
4.	Enhance weather and climate forecasting	Portugal	Portugal	A/AC.105/C.1/L.269
7.	Implement an integrated, global system to manage natural disaster mitigation, relief and prevention efforts	Canada, China and France	Canada	A/AC.105/C.1/L.273
10.	Improve universal access to and compatibility of space-based navigation and positioning systems	Italy and United States of America	Italy	A/AC.105/C.1/L.274
11.	Promote sustainable development by applying the results of space research ^b	Nigeria		A/AC.105/C.1/L.264
17.	Enhance capacity-building by developing human and budgetary resources	Japan	Japan	A/AC.105/C.1/2004/CRP.13
18.	Increase awareness among decision makers and the general public of the importance of space activities	Austria and United States of America	Austria	A/AC.105/C.1/2004/CRP.14
32.	Identify new and innovative sources of financing to support the implementation of the recommendations of UNISPACE III ^b	France		A/AC.105/L.246

^a The recommendations are numbered in the order of their appearance in the resolution entitled "The Space Millennium: Vienna Declaration on Space and Human Development", which contains the full text of each recommendation (see *Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19-30 July 1999* (United Nations publication, Sales No. E.00.I.3), chap. I, resolution 1).

^b The Action Team on Sustainable Development and the Action Team on Innovative Sources of Financing presented their final reports to the fortieth session of the Subcommittee and forty-sixth session of the Committee on the Peaceful Uses of Outer Space, in 2003.

61. The Subcommittee noted with satisfaction that the Action Team on Knowledge-sharing (recommendation 9) and the Action Team on Near-Earth Objects (recommendation 14) had reported to the Subcommittee on their progress and the work they had conducted thus far. The interim report of the Action Team on Near-Earth Objects was made available to the Subcommittee (A/AC.105/C.1/2004/CRP.30).
62. The Subcommittee noted with appreciation the contributions that entities of the United Nations system, as well as intergovernmental and non-governmental organizations that had permanent observer status with the Committee, had made to the work of the action teams.
63. The Subcommittee agreed that the assessment of the status of the implementation of the recommendations of UNISPACE III should be both objective and pragmatic and that the ways to carry forward the recommendations of UNISPACE III should be based on clear and realistic criteria, as well as capacity to implement the recommendations.
64. The Subcommittee agreed that the work of the action teams should be followed up by defining and implementing action plans with specific goals, means and tasks.
65. The Subcommittee noted that the recommendations of UNISPACE III continued to be implemented by Member States through national and regional programmes and bilateral cooperation, as well as international cooperation and integration facilitated by the Committee on the Peaceful Uses of Outer Space and its Subcommittees at the regional and international levels.
66. The Subcommittee noted with appreciation the reports by Member States on the promotion and organization of public outreach activities in celebration of World Space Week.
67. The Subcommittee agreed that Member States should strengthen their efforts to promote capacity-building, including through cooperation and coordination with the Committee and other organizations, such as UNESCO, CEOS and IAF.
68. The Subcommittee noted that the use of space technology to provide economic and social benefits, as well as meeting the concrete needs of developing countries, should shift from the experimental phase to the operational phase.
69. The Subcommittee noted that, in accordance with General Assembly resolution 58/89, the Working Group established by the Committee to prepare a report for submission to the Assembly at its fifty-ninth session for the review of the progress made in the implementation of the recommendations of UNISPACE III had held informal consultations during the forty-first session of the Subcommittee under the chairmanship of Niklas Hedman (Sweden). Eight meetings of the informal consultations were held between 19 and 26 February 2004.
70. During the informal consultations, a review of the draft text for chapters I-IV and annexes I-IV was conducted for general comments. As for chapters V and VI of the draft report, it was agreed that the draft list of elements to be included in those chapters, as contained in document A/AC.105/C.1/2004/CRP.31, would provide guidelines for developing a draft text.

71. The Subcommittee noted that, in accordance with resolution 58/89, the next round of the informal consultations of the Working Group would be held during the forty-third session of the Legal Subcommittee. The Subcommittee agreed that the informal consultations would begin on 31 March 2004 and would undertake a paragraph-by-paragraph review of the entire text of the draft report. The Subcommittee noted that any further comments received from States members of the Committee on the Peaceful Uses of Outer Space by 8 March 2004 would be taken into account in the draft report to be made available for the next round of the informal consultations.

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

72. In accordance with General Assembly resolution 58/89, the Subcommittee continued its consideration of agenda item 7, related to remote sensing of the Earth.

73. In the course of the discussions, delegations reviewed national and cooperative programmes in remote sensing. Examples were given of national programmes and bilateral, regional and international cooperation. The representatives of Canada, China, France, India, Japan, Nigeria, the Republic of Korea and the United States made statements under the agenda item.

74. The following technical presentations were made on the issue of remote sensing of the Earth by satellite:

(a) "Earth observations for water management: perspectives from India", by the representative of India;

(b) "The microsatellite 'Baumanets' as a tool for application of remote sensing methods in educational programmes", by the representative of the Russian Federation.

75. The Subcommittee emphasized the importance of Earth observation satellite data to support activities in a number of key development areas, such as water resource management, coastal zone monitoring, fishing, geological studies, land use/land cover mapping, agriculture, forest resource management, urban planning, monitoring and assessment of soil degradation, oceanography, monitoring of global climate change and greenhouse gases and natural disaster prevention, mitigation and relief.

76. The Subcommittee highlighted the increased availability of new space-based sensors on board new satellites such as Resourcesat-1, INSAT-3A, STSAT-1, INSAT-3E, CHIPS, GALEX, CBERS-2 and SciSat.

77. The Subcommittee emphasized the importance of providing non-discriminatory access to remote sensing data and to derived information at a reasonable cost and in a timely manner and of building capacity in the adoption and use of remote sensing technology, in particular when meeting the needs of developing countries.

78. The Subcommittee encouraged further international cooperation in the use of remote sensing satellites, in particular by sharing experience and technologies through bilateral, regional and international collaborative projects. The Subcommittee noted the important role played by organizations such as CEOS, ISPRS and IAF and by international entities such as the Integrated Global Observing Strategy Partnership in promoting international cooperation in the application of remote sensing technology, especially for the benefit of developing countries.

79. The Subcommittee noted that at the Earth Observation Summit held in Washington, D.C., on 31 July 2003 over 30 countries had adopted a Declaration of Support, which signified a political commitment to move towards developing a plan that would empower decision makers to continuously monitor the state of the Earth, to increase understanding of dynamic Earth processes, to enhance prediction of the Earth system and to further fulfil international environmental treaty obligations. It noted with satisfaction that, following the Summit, an international ad hoc Group on Earth Observations (GEO) had been established and had started work on a 10-year implementation plan. More than 40 countries and 25 international organizations were participating in the initiative. The Subcommittee also noted that the inaugural meeting of GEO had established five subgroups to consider international cooperation; architecture; capacity-building; data utilization; and user requirements and outreach. It was also noted that the draft of the implementation plan would be reviewed at the next Earth Observation Summit, to be held in Japan in April 2004.

80. The Subcommittee took note of the CEOS initiative entitled “CEOS World Summit on Sustainable Development Follow-up Programme”, which focused on the 12 specific references to Earth observations and satellite technology in the Plan of Implementation of the World Summit. The references were grouped into five important areas: (a) capacity-building; (b) water resource management; (c) disaster management and conflict; (d) climate change; and (e) global mapping, land use change and geographic information systems. It also noted that, at its seventeenth plenary meeting, CEOS had adopted principles of satellite data provision in support of Earth observation education and training, which would make data more easily accessible for education and capacity-building in developing countries.

81. The Subcommittee noted with satisfaction efforts aimed at establishing satellite observation systems for disaster monitoring and recovery operations. It also emphasized the importance of such international initiatives as the Disaster Monitoring Constellation.

82. The Subcommittee also noted with satisfaction that Algeria and Nigeria had successfully launched satellites that formed part of the Constellation. The data received from Algeria Sat-1 and Nigeria Sat-1 would also be used in various remote sensing applications.

83. The Subcommittee took note of developments in establishing national regulatory frameworks for commercial remote sensing, as well as in creating national infrastructures for the effective development and operation of Earth observation systems and in the utilization of remote sensing data for the benefit of governmental, non-governmental and private organizations.

V. Space debris

84. In accordance with General Assembly resolution 58/89, the Scientific and Technical Subcommittee continued its consideration of agenda item 8, "Space debris", in accordance with the work plan adopted at its thirty-eighth session (A/AC.105/761, para. 130).

85. The representatives of the Czech Republic, France, Germany, India, Indonesia, Italy, Japan, the Republic of Korea, the Russian Federation, the United Kingdom and the United States made statements on the item.

86. The Subcommittee heard the following scientific and technical presentations on the subject of space debris:

(a) "Example of space debris mitigation in France: the SPOT-1 de-orbiting operations", by the representative of France;

(b) "DLR study: Space debris end-to-end service", by the representative of Germany;

(c) "Re-orbiting of INSAT-2B and 2C satellites", by the representative of India;

(d) "Russian Federation activity in the field of the space debris problem", by the representative of the Russian Federation;

(e) "United States of America space debris environment and policy updates in 2003", by the representative of the United States;

(f) "Space debris", by the representative of ESA;

(g) "Status report on the International Academy of Astronautics space debris mitigation study", by the representative of IAA;

(h) "Report of the IADC activities on space debris mitigation measures", by the representative of the Inter-Agency Space Debris Coordination Committee (IADC).

87. The Subcommittee had before it a 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, containing replies received from member States on the issue (A/AC.105/817). The Subcommittee invited member States and regional space agencies to continue to provide reports in future years.

88. The Subcommittee noted with appreciation that IADC had continued its efforts to achieve further progress in technical understanding of various aspects connected with space debris.

89. The Subcommittee agreed that member States, in particular space-faring countries, should pay more attention to the problem of collision of space objects, including those with nuclear power sources on board, with space debris and to other aspects of space debris, as well as its re-entry into the atmosphere. It noted that the General Assembly, in its resolution 58/89, had called for the continuation of national research on the question, the development of improved technology for monitoring space debris and the compilation and dissemination of data on space debris. The

Subcommittee agreed that national 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.

90. The Subcommittee noted that United States domestic agencies were using debris mitigation practices consistent with the IADC space debris mitigation guidelines. The Subcommittee was also informed that the IADC guidelines and the draft version of the European space debris safety and mitigation standard had already been applied to the German national satellite project, Terra SAR.

91. The Subcommittee noted that France had de-orbited its satellite SPOT-1 and India had re-orbited its satellites INSAT-B and INSAT-2C, as a voluntary measure, which demonstrated their commitment to debris mitigation measures.

92. Pursuant to General Assembly resolution 58/89, the Subcommittee, at its 611th meeting, on 24 February, established a Working Group to consider comments from States members of the Committee on the Peaceful Uses of Outer Space on the proposals on debris mitigation presented by IADC to the Subcommittee at its fortieth session.

93. At its 617th meeting, on 27 February, the Subcommittee endorsed the report of the Working Group (see annex III to the present report).

94. The document to be considered by the Working Group during the forty-second session of the Subcommittee will be entitled "Revised IADC proposals on space debris mitigation". The views expressed in paragraphs 95-100, 102 and 104 below are those of the delegations whose statements are summarized.

95. Some delegations expressed the view that the fastest way to limit the growth of orbital debris would be for space-faring countries to implement the measures specified in the IADC space debris mitigation guidelines.

96. Some delegations expressed the view that the document entitled "IADC space debris mitigation guidelines" (A/AC.105/C.1/L.260) should be regarded only as proposals submitted to the Subcommittee in accordance with the multi-year work plan for the agenda item on space debris and should be examined further by the member States of the Committee.

97. Some delegations expressed the view that the endorsement of the IADC proposals on space debris mitigation was premature, owing to the fact that they did not necessarily correspond to space debris mitigation practices of some member States and needed to be reviewed and updated in view of the comments received from member States.

98. Some delegations supported the endorsement of the IADC guidelines by the Subcommittee. Other delegations were of the view that, instead of endorsing the guidelines, it would be expedient to initiate work on a new document, which should be based on the IADC guidelines but developed in the framework of the Subcommittee and approved by the Committee on the Peaceful Uses of Outer Space and the General Assembly. In that connection, the view was expressed that adoption of such a document would have far-reaching consequences for the development of space activities in the world.

99. The view was expressed that, with suitable but minimal redrafting, the IADC guidelines could be amended to allow the Subcommittee to recommend to the Committee the endorsement of the guidelines by the General Assembly.

100. The view was expressed that the IADC guidelines had not been drafted as a standard and should not be considered as such. They could be considered as a set of measures that would assist in keeping space open for use by future generations.

101. The view was expressed that space debris mitigation measures should be implemented earlier in the process of space-system design.

102. The view was expressed that the subject of space debris was extremely important to the preservation of the outer space environment, so that all developing countries would be able to explore outer space in the future with no constraints.

103. The view was expressed that only a few developed countries had the technological prerequisites for the mitigation of space debris. Proper compliance with the IADC guidelines was in reality not feasible for most less developed countries. That delegation expressed its hope that the technological and financial means for the mitigation of space debris would be provided, so as to enable less developed countries to step up their own efforts to reduce space debris within their own space capability.

104. The view was expressed that it could be anticipated that mitigation measures would be implemented in the design of future spacecraft and that these would significantly contribute to the reduction of the risks posed by space debris.

105. The view was expressed that a recommendation for a launching State to provide information on the functional status of its space objects should be included in the IADC guidelines.

106. The view was expressed that a network of specialized focal points should be established in all countries that might be concerned by re-entry risks and that an international database of such focal points would be highly recommended.

107. The view was expressed that compliance with all space debris mitigation measures would involve additional costs for all commercial operators and it would therefore be desirable to explore ways and means to provide technical and economic support.

VI. Use of nuclear power sources in outer space

108. In accordance with General Assembly resolution 58/89, the Scientific and Technical Subcommittee continued its consideration of agenda item 9, "Use of nuclear power sources in outer space", under the work plan adopted at its fortieth session (A/AC.105/804, annex III).

109. The Subcommittee had before it the following documents:

(a) 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.105/817);

(b) Note by the Secretariat on possible organizational plans for potential co-sponsorship of an effort to develop an international space nuclear power source technical safety standard and potential advice of the International Atomic Energy Agency to the Scientific and Technical Subcommittee in the preparation of such a standard (A/AC.105/C.1/L.268);

(c) A working paper submitted by Argentina, France, Pakistan and the United Kingdom of Great Britain and Northern Ireland on potential implementation options for establishing an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications (A/AC.105/C.1/L.271 and Corr.1).

110. The representatives of Germany, India, the Republic of Korea, the United Kingdom and the United States made statements under the item.

111. The following technical presentations on the subject of the use of nuclear power sources (NPS) in outer space were made to the Subcommittee:

(a) “The main lines of development and uses of space nuclear power sources in Russia”, by the representative of the Russian Federation;

(b) “Applications enabled or enhanced by space nuclear power sources”, by the representative of the United States;

(c) “Future exploration and nuclear power systems”, by the representative of the United States;

(d) “Space nuclear power sources: concepts and European Space Agency applications for scientific exploration”, by the representative of ESA.

112. The view was expressed that the Principles Relevant to the Use of Nuclear Power Sources in Outer Space of 1992 (General Assembly resolution 47/68) had provided a solid international framework for the use of NPS in outer space over the past decade. That delegation was of the view that the reference to the internationally accepted radiation protection standard in the Principles should be retained and that further information should be sought with the purpose of understanding the reason for proposing a revision of the existing principles.

113. Some delegations were of the view that a workshop to be organized by the Office for Outer Space Affairs jointly with IAEA, proposed under option 2 in document A/AC.105/C.1/L.271/Rev.1, should be held to discuss the scope and general attributes of a potential technical safety standard for NPS in outer space.

114. In accordance with General Assembly resolution 58/89, the Subcommittee, at its 606th meeting, on 19 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 11 meetings.

115. The Subcommittee noted with satisfaction that, in accordance with the work plan, the Working Group had made progress during the intersessional period on the development of potential implementation options for establishing an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable space NPS applications.

116. The Subcommittee noted that the Working Group had discussed potential options for establishing possible cooperation between the Committee and IAEA (see A/AC.105/C.1/L.271/Rev.1).

117. At its 616th meeting, on 26 February, the Subcommittee endorsed the report of the Working Group (see annex IV to the present report).

118. The Scientific and Technical Subcommittee endorsed the recommendation of the Working Group that it continue intersessional work on the topics described in the multi-year work plan for the period 2003-2006 (A/AC.105/804, annex III). To facilitate those discussions among interested members of the Working Group, consultations of the Group should be held in Vienna on 7 and 8 June 2004 (and possibly extended up to 9 to 11 June 2004), during the forty-seventh session of the Committee on the Peaceful Uses of Outer Space.

VII. Space-system-based telemedicine

119. In accordance with General Assembly resolution 58/89, the Scientific and Technical Subcommittee considered agenda item 10, "Space-system-based telemedicine", under the three-year work plan adopted at its fortieth session. Pursuant to the work plan, starting in 2004 member States of the Committee were invited to make presentations on the status in their countries of telemedicine applications in general and space-system-based telemedicine in particular and on commercially available telemedicine systems and their capacity to use space systems.

120. The representatives of Austria, Canada, Colombia, France, India, Japan, Mexico, Nigeria, Romania and the United States made statements on the item.

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

- (a) "Tele-health and satellites", by the representative of France;
- (b) "Constellation of small telecommunication satellites for telemedicine in Russia", by the representative of the Russian Federation;
- (c) "Tactical and commercial telemedicine in an interactive world: the NASA perspective", by the representative of the United States;
- (d) "Battlefield medical information systems: telemedicine", by the representative of the United States;
- (e) "Tele-operated robotic arm through satellite networks for echographic diagnostics in an emergency in isolated places", by the representative of ESA;
- (f) "Overview of current activities in telemedicine at the European Space Agency", by the representative of ESA.

122. The Subcommittee noted the broader applications of telemedicine in health care and their benefits for epidemiology, tele-surgery, off-site radiology services, cardiac monitoring, medical consultations and specialist referrals, correctional care and tele-education in medicine, as well as therapeutic education.

123. The Subcommittee noted a number of initiatives to enhance, among other things, tele-robotic surgery, surveillance and control of Guinea worm, dengue, Rift Valley fever, cholera, meningitis and other diseases, and telemedical diagnosis and psychological support for manned long-duration space missions.

124. The Subcommittee noted the significant benefits of space-based telemedicine in providing medical expertise to remote mobile and static locations that were not connected to the terrestrial telecommunication network, in particular for emergency response following a disaster.

125. The Subcommittee noted that several projects had already been initiated at the national level, including one where customized medical software and medical diagnostic instruments had been connected to commercial very small aperture terminals (VSATs) at several locations, to bring the benefits of space-based telemedicine to the grass-roots level.

126. The Subcommittee noted that the cost of equipment used for space-system-based telemedicine was a matter of concern for developing countries. The Subcommittee noted that the trend towards lower prices for such equipment could contribute to bringing the benefits of space-system-based telemedicine to a greater number of developing countries, which would significantly enhance health care and medical services.

127. The Subcommittee agreed that broader international cooperation in the area of space-system-based telemedicine should be further encouraged, to ensure that its benefits reached all countries, in particular developing countries, in various areas of health and medical services.

VIII. Examination of the physical nature and technical attributes of the geostationary orbit and of its utilization and applications, including, inter alia, 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

128. In accordance with General Assembly resolution 58/89, the Scientific and Technical Subcommittee considered agenda item 11, on the geostationary orbit and space communications, as a single issue/item for discussion.

129. The representatives of Colombia, Ecuador and Indonesia made statements on the item.

130. Some delegations expressed the view that, as the capacity of the geostationary orbit was not unlimited, there was a risk that it might become saturated. Those delegations considered that its exploitation should be rationalized and made accessible to all countries, in particular those which did not currently possess the technical and scientific capabilities to have access to the geostationary orbit under equitable conditions. The needs and interests of developing countries, the geographical position of certain countries and the process followed by ITU should also be borne in mind. They therefore considered that the item on the geostationary orbit should remain on the agenda of the Subcommittee.

131. The view was expressed that countries in tropical zones should, in fact, be given preference in the assignment of spectrum within the geostationary orbit.

132. The view was expressed that the geostationary orbit was an integral part of outer space and could only be addressed in the context of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (General Assembly resolution 2222 (XXI), annex) and the ITU regulations.

133. The Subcommittee noted with satisfaction that the Office for Outer Space Affairs had organized a meeting of a panel of experts on the contribution of space communication technology to bridging the digital divide during the first phase of the World Summit on the Information Society, held in Geneva from 10 to 12 December 2003, which had contributed to increasing awareness of the role that space technology could play in achieving the objectives of the Summit.

IX. Implementation of an integrated, space-based global natural disaster management system

134. In accordance with General Assembly resolution 58/89, the Scientific and Technical Subcommittee considered agenda item 12, "Implementation of an integrated, space-based global natural disaster management system", as a single issue/item for discussion.

135. The representatives of China, Cuba, France, Germany, India, Japan, Morocco, Nigeria and the United States made statements under the item.

136. The representative of the secretariat for the International Strategy for Disaster Reduction made a presentation to the Subcommittee entitled "Towards the World Conference on Disaster Reduction".

137. In the course of the discussion, delegations reviewed national and cooperative efforts in the use of space-based technologies to support disaster preparedness and response activities. Examples were given of national initiatives and bilateral, regional and international cooperation.

138. The Subcommittee noted with satisfaction the progress made by the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (the International Charter "Space and Major Disasters"). In 2003, the National Commission on Space Activities of Argentina had joined the Charter and the Japan Aerospace Exploration Agency had decided to apply to join it, increasing to seven the number of space agencies that had made their space assets available to civil protection authorities responding to a major disaster.

139. The Subcommittee noted that the Office for Outer Space Affairs had entered into an agreement in 2003 to become a cooperating body to the Charter, thus making it possible, through that agreement, for any United Nations entity to request imagery from the Charter to facilitate relief efforts immediately following a natural or technological disaster. Effective 1 July 2003, the Office had set up a hotline available round the clock, through which United Nations entities could use the Charter to receive satellite imagery in support of emergency response efforts. Since

that date, the Charter had been used five times: in response to floods in Nepal, to floods in the Dominican Republic, to landslides in the Philippines, to an earthquake in Indonesia and, most recently, to the earthquake in Morocco that had struck during the Subcommittee's session.

140. The Subcommittee recognized the important contributions that the Action Team on Disaster Management had made towards defining concrete steps that would contribute to the implementation of an integrated, space-based global natural disaster management system and agreed that further study should be carried out on the implementation of the recommendation to establish a disaster management international space coordination organization within the framework of the United Nations.

141. The Subcommittee noted the need for space-based communication systems to be considered, to a greater extent, as solutions in the response phase of disasters. Terrestrial communication infrastructures were often disrupted during natural disasters. Transportable satellite terminals could be flown in relatively easily and set up within a short period of time, thus establishing indispensable communication links to the outside world. The Subcommittee was of the view that every national and international organization involved in disaster response should have free access to and possess readily deployable mobile communication terminals, compatible with different communication satellite systems. The Subcommittee was also of the view that all member States should take necessary measures to facilitate such access for humanitarian purposes and remove existing barriers to it.

142. The view was expressed that the Office for Outer Space Affairs should coordinate with communication satellite operators to reserve part of the transponder and bandwidth capacities in order to support disaster management activities.

143. The Subcommittee noted that the number of countries participating in the International Satellite System for Search and Rescue (COSPAS-SARSAT) had increased to 35 and that such a system could serve as a model for how a global operational system for disaster support might work. The Subcommittee also noted that Nigeria, through its National Emergency Management Agency, had in 2003 fully installed a COSPAS-SARSAT mission control centre and local user terminal, which would contribute to supporting search and rescue operations in Western Africa.

144. The Subcommittee noted with satisfaction the progress made by several member States in the creation of regional and global integrated solutions based on the establishment of constellations of small satellites to be used not only for disaster management activities, but also for environmental protection. Those constellations included the Disaster Monitoring Constellation (in which three additional satellites had joined Alsat-1 of Algeria in 2003, namely Nigeria Sat-1 of Nigeria, BILSAT-1 of Turkey and UK-DMC of the United Kingdom) and the environmental and disaster monitoring constellation of small satellites (the "2+1" constellation) being set up by China (which was scheduled to be concluded by 2006, with plans to expand by 2008 to the "4+4" constellation, and which would primarily benefit Asia and the Pacific).

145. The Subcommittee noted the work being carried out by CEOS, specifically with regard to module 3 of the CEOS programme to follow up on the World Summit on Sustainable Development, which would address disaster management and

environmental and humanitarian impact of conflict. The module, which would be initiated in 2004, would focus on working towards increasing awareness in the applications for and utilization of Earth observation data in developing countries and would assist in the establishment of infrastructure and communications related to disaster management and the environmental and humanitarian impact of conflict.

146. The Subcommittee noted that the Earth Observation Summit, held in Washington, D.C., on 31 July 2003, and the activities of GEO, established as a result of the Summit, were intended to bring a new dimension to global disaster management efforts. The GEO action plan that was being developed could, when implemented, help to provide new capabilities and resources for countries, especially developing countries, to address critical societal issues better.

147. The view was expressed that there was a need for international coordination of various research and development activities within the area of earthquake prediction using space-based systems and information.

148. The Subcommittee noted that the National Commission on Space Activities of Argentina, the Office for Outer Space Affairs and ESA had organized a meeting of experts on the use of space technology in flood and fire management in Cordova, Argentina, from 24 to 26 November 2003. The meeting, which was hosted by the Instituto Mario Gulich, served to prepare profiles for pilot project proposals.

149. The Subcommittee noted that the United Nations International Workshop on the Use of Space Technology for Disaster Management was being organized by the German Aerospace Center and the Office for Outer Space Affairs, with the support of ESA. The workshop, which was scheduled to be held in October 2004 in Germany, would provide an opportunity to propose ideas and strategies for the implementation of a global system based on space technology solutions to support disaster management activities, within a framework of international cooperation.

150. The Subcommittee noted the opportunity provided by the World Conference on Disaster Reduction, which would be held from 18 to 22 January 2005 in Kobe, Japan, and would focus on a review of progress over the past decade, based on the Yokohama Strategy for a Safer World: Guidelines for Natural Disaster Prevention, Preparedness and Mitigation, containing the Principles, the Strategy and the Plan of Action, and the definition of a set of specific goals, activities and policy measures for implementation in the period 2005-2015. The Subcommittee further noted that space technology could play a central role in disaster reduction and that both the Scientific and Technical Subcommittee and the Committee could contribute to the World Conference and its follow-up, ensuring that space technologies would be an integral part of the solutions put forward in the Conference's plan of implementation.

X. Solar-terrestrial physics

151. In accordance with General Assembly resolution 58/89, the Scientific and Technical Subcommittee considered agenda item 13, "Solar-terrestrial physics", as a single issue/item for discussion.

152. The representatives of Canada, China, Cuba, France, India, Japan and the United States made statements under the item.

153. The Subcommittee heard the following scientific and technical presentations on the subject of solar-terrestrial physics:

- (a) “The Sun-Earth plasma environment”, by the representative of Austria;
- (b) “CORONAS-F: contribution to solar-terrestrial physics”, by the representative of the Russian Federation;
- (c) “The scientific importance and socio-economic efficiency of the implementation of programmes on solar-terrestrial physics”, by the representative of the Russian Federation;
- (d) “International Living with a Star (ILWS)”, by the representative of the United States;
- (e) “European view on International Living with a Star”, by the representative of ESA;
- (f) “Report of the Task Force on Radio Astronomy and the Radio Spectrum”, by the representative of the Organisation for Economic Cooperation and Development.

154. The Subcommittee agreed that solar-terrestrial physics was important in exploring the solar corona and understanding the functioning of the Sun; understanding the effects that the variability in the Sun can have on the Earth’s magnetosphere, environment and climate; exploring the ionized environments of planets; and reaching the limits of the heliosphere and understanding its interaction with interstellar space. The Subcommittee also agreed that, as society became increasingly dependent on space-based systems, it was vital to understand how space weather, caused by solar variability, could affect, among other things, space systems and human space flight, electric power transmission, high-frequency radiocommunications, global navigation satellite system (GNSS) signals and long-range radar, as well as the well-being of passengers in high altitude aircraft.

155. The Subcommittee noted that severe magnetic storms resulting from coronal mass ejections had caused failures of many geostationary orbit communication satellites, radio blackouts and power outages on Earth. The Subcommittee agreed that the ability to predict space weather accurately could assist in preventing or minimizing impacts of severe magnetic storms on space-based services and systems and on ground power systems.

156. The Subcommittee noted that several scientific missions had been undertaken by space agencies to study the interactions between the Sun and the Earth. These included the Cluster mission, the Double Star mission, the Enhanced Polar Outflow Probe (ePOP), the Solar and Heliospheric Observatory (SOHO) and the Yohkoh mission.

157. The Subcommittee agreed that international cooperation in research and development activities in the field of solar-terrestrial physics was important to all countries, in particular developing countries, owing to the high cost of such activities.

158. The Subcommittee noted that the International Living with a Star (ILWS) initiative was a collaborative programme in solar-terrestrial physics that had been undertaken to stimulate, strengthen and coordinate space research to understand the

governing processes of the connected Sun-Earth system as an integrated entity. ILWS consisted of an international fleet of more than a dozen international space missions acquiring data on the behaviour of that system by observing the Sun and its variability and measuring conditions in interplanetary space. The Subcommittee also noted that new space missions were under development to contribute to ILWS in the coming decade. These included the CORONAS-PHOTON project, the Picard micro-satellite mission, the Solar-B satellite and the Solar Probe, among others.

XI. Draft provisional agenda for the forty-second session of the Scientific and Technical Subcommittee

159. In accordance with General Assembly resolution 58/89, the Scientific and Technical Subcommittee considered proposals for a draft provisional agenda for its forty-second session to be submitted to the Committee on the Peaceful Uses of Outer Space. Pursuant to paragraph 19 of that resolution, the Subcommittee requested the Working Group of the Whole, established at its 603rd meeting, on 18 February, to consider the draft provisional agenda for the forty-second session of the Subcommittee.

160. At its 617th meeting, on 27 February, the Subcommittee endorsed the recommendations of the Working Group of the Whole concerning the draft provisional agenda for the forty-second session of the Subcommittee, as contained in the report of the Working Group of the Whole (see annex II to the present report).

161. The Subcommittee noted that the Secretariat had scheduled the forty-second session of the Subcommittee to be held from 21 February to 4 March 2005.

Notes

¹ See *Report of the Third United Nations Conference on the Exploration and Peaceful Uses of Outer Space, Vienna, 19-30 July 1999* (United Nations publication, Sales No. E.00.I.3).

² *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August-4 September 2002* (United Nations publication, Sales No. E.03.II.A.1 and corrigendum), chap. I, resolution 2, annex.

³ *Report of the Third United Nations Conference ...*, chap. I, resolution 1.

⁴ United Nations publication, Sales No. E.04.I.6.

⁵ United Nations publication, Sales No. E.04.I.5.

Annex I

Documents before the Scientific and Technical Subcommittee at its forty-first session

<i>Symbol</i>	<i>Agenda item</i>	<i>Title or description</i>
A/AC.105/807	5	Report on the Thirteenth United Nations/Sweden International Training Course on Remote Sensing Education for Educators (Stockholm and Kiruna, Sweden, 5 May-13 June 2003)
A/AC.105/808	5	Report on the United Nations/Romania/European Space Agency Regional Workshop on the Use of Space Technology for Disaster Management in Europe (Poiana Brasov, Romania, 19-23 May 2003)
A/AC.105/809	5	Report on the United Nations/European Space Agency Workshop on Remote Sensing Applications and Education (Damascus, 29 June-3 July 2003)
A/AC.105/810	5	Report on the United Nations/Thailand Workshop on the Contribution of Space Communication Technology to Bridging the Digital Divide (Bangkok, 1-5 September)
A/AC.105/812	5	Report on the United Nations/International Astronautical Federation Workshop on Education and Capacity-Building in Space Technology for the Benefit of Developing Countries, with an Emphasis on Remote Sensing (Bremen, Germany, 25-27 September 2003)
A/AC.105/813	5	Report on the Fourth United Nations/International Academy of Astronautics Workshop on Small Satellites in the Service of Developing Countries: a Contribution to Sustainable Development (Bremen, Germany, 30 September 2003)
A/AC.105/815	5	Report of the Expert on Space Applications
A/AC.105/816	4	Note by the Secretariat on international cooperation in the peaceful uses of outer space: activities of Member States
A/AC.105/817	8 and 9	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.105/818	4	Report of the Inter-Agency Meeting on Outer Space Activities on its twenty-fourth session (Geneva, 21-23 January 2004)
A/AC.105/819	6	Note by the Secretariat on international cooperation in the peaceful uses of outer space: activities of international organizations that have contributed to implementing the recommendations of UNISPACE III

<i>Symbol</i>	<i>Agenda item</i>	<i>Title or description</i>
A/AC.105/820 and Add.1	8	Note by the Secretariat on Inter-Agency Space Debris Coordination Committee proposals on space debris mitigation: comments received from member States of the Committee on the Peaceful Uses of Outer Space
A/AC.105/822	4	Report of the Secretary-General on the coordination of space-related activities within the United Nations system: direction and anticipated results for the period 2004-2005
A/AC.105/C.1/L.268	9	Note by the Secretariat on possible organizational plans for potential co-sponsorship of an effort to develop an international space nuclear power source technical safety standard and potential advice of the International Atomic Energy Agency to the Scientific and Technical Subcommittee in the preparation of such a standard
A/AC.105/C.1/L.269	6	Final report of the Action Team on Weather and Climate Forecasting on the implementation of the recommendations of UNISPACE III
A/AC.105/C.1/L.270	1	Provisional annotated agenda
A/AC.105/C.1/L.271 and Corr.1	9	Working paper submitted by Argentina, France, Pakistan and the United Kingdom: potential implementation options for establishing an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications
A/AC.105/C.1/L.271/Rev.1	9	Working paper submitted by the Working Group on the Use of Nuclear Power Sources in Outer Space: potential implementation options for establishing an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications
A/AC.105/C.1/L.272 and Add.1-4	6	Draft report of the Committee on the Peaceful Uses of Outer Space on the implementation of the recommendations of UNISPACE III
A/AC.105/C.1/L.273	6	Final report of the Action Team on Disaster Management on the implementation of the recommendations of UNISPACE III
A/AC.105/C.1/L.274	6	Final report of the Action Team on Global Navigation Satellite Systems on the implementation of the recommendations of UNISPACE III
A/AC.105/C.1/L.275	6	Final report of the Action Team for the Development of a Comprehensive Worldwide Environmental Monitoring Strategy on the implementation of the recommendations of UNISPACE III

<i>Symbol</i>	<i>Agenda item</i>	<i>Title or description</i>
A/AC.105/C.1/L.276 and Add.1 and 2	15	Draft report of the Scientific and Technical Subcommittee
A/AC.105/C.1/NPS/2004/L.1	9	Draft report of the Working Group on the Use of Nuclear Power Sources in Outer Space
A/AC.105/C.1/SD/2004/L.1	8	Draft report of the Working Group on Space Debris
A/AC.105/C.1/WGW/2004/L.1	5, 6 and 14	Draft report of the Working Group of the Whole
A/AC.105/C.1/2004/CRP.1		Information for participants
A/AC.105/C.1/2004/CRP.2		Provisional list of participants
A/AC.105/C.1/2004/CRP.3		List of space-related initiatives and programmes carried out by member States of the Committee on the Peaceful Uses of Outer Space and within the United Nations system that respond to specific recommendations contained in the Johannesburg Plan of Implementation
A/AC.105/C.1/2004/CRP.4 and Add.1	4	Note by the Secretariat on international cooperation in the peaceful uses of outer space: activities of Member States
A/AC.105/C.1/2004/CRP.5	6	Note by the Secretariat on international cooperation in the peaceful uses of outer space: activities of international organizations that have contributed to implementing the recommendations of UNISPACE III
A/AC.105/C.1/2004/CRP.6	6	Summary of the findings, recommendations and actions taken by the Action Team on Public Health
A/AC.105/C.1/2004/CRP.7	6	Meetings planned during the forty-first session of the Scientific and Technical Subcommittee by Action Teams to implement recommendations of UNISPACE III
A/AC.105/C.1/2004/CRP.8/Rev.1	6	Note by the Secretariat: list of documents related to agenda item 6
A/AC.105/C.1/2004/CRP.9 and Add.1	6	Draft report on the implementation of the recommendations of UNISPACE III: comments received from member States of the Committee on the Peaceful Uses of Outer Space and entities of the United Nations system
A/AC.105/C.1/2004/CRP.10	6	Correlation between the recommendations of UNISPACE III and actions called for in the United Nations Millennium Declaration, the Plan of Implementation of the World Summit on Sustainable Development and the Plan of Action of the World Summit on the Information Society
A/AC.105/C.1/2004/CRP.11	6	Note by the Secretariat on the results of the survey on the level of priority to be given to the recommendations of UNISPACE III that are still to be addressed

<i>Symbol</i>	<i>Agenda item</i>	<i>Title or description</i>
A/AC.105/C.1/2004/CRP.12/Rev.1	6	Final report of the Action Team on the Management of Natural Resources
A/AC.105/C.1/2004/CRP.13	6	Final report of the Action Team on Capacity-Building
A/AC.105/C.1/2004/CRP.14	6	Final report of the Action Team on Increasing Awareness
A/AC.105/C.1/2004/CRP.15	6	Summary of the findings, recommendations and actions taken by the Action Team on Increasing Awareness
A/AC.105/C.1/2004/CRP.16	5, 6 and 14	List of issues to be considered in the Working Group of the Whole
A/AC.105/C.1/2004/CRP.17	6	Draft report of the Committee on the Peaceful Uses of Outer Space on the implementation of the recommendations of UNISPACE III: chapter IV, "Synergies between the implementation of the recommendations of UNISPACE III and the results of global conferences held within the United Nations system and other global initiatives"
A/AC.105/C.1/2004/CRP.18		Proceedings of the fourth industry symposium
A/AC.105/C.1/2004/CRP.19	6	Final report of the Action Team on Global Navigation Satellite Systems: corrigendum
A/AC.105/C.1/2004/CRP.20/Rev.1	14	Proposal for a three-year work plan on space-system-based disaster management support
A/AC.105/C.1/2004/CRP.21	14	Proposal for a new single issue/item for discussion on support for International Geophysical Year 2007
A/AC.105/C.1/2004/CRP.22	8	IADC Space Debris Mitigation Guidelines: comments provided by the Russian Federation
A/AC.105/C.1/2004/CRP.23	8	IADC Space Debris Mitigation Guidelines: comments received from the Czech Republic
A/AC.105/C.1/2004/CRP.24	14	Proposal for a work plan on near-Earth objects
A/AC.105/C.1/2004/CRP.25	14	Draft provisional agenda of the Scientific and Technical Subcommittee at its forty-second session, in 2005
A/AC.105/C.1/2004/CRP.26	9	Proposed outline of objectives, scope and attributes for an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable space nuclear power source applications
A/AC.105/C.1/2004/CRP.27	9	Working paper submitted by the Working Group on the Use of Nuclear Power Sources in Outer Space on potential implementation options for establishing an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable nuclear power source applications

<i>Symbol</i>	<i>Agenda item</i>	<i>Title or description</i>
A/AC.105/C.1/2004/CRP.28	9	Draft paper submitted by the Working Group on the Use of Nuclear Power Sources in Outer Space on early draft of flow charts for possible options
A/AC.105/C.1/2004/CRP.29 and Add.1	8	Compilation of comments submitted by member States on the IADC space debris mitigation guidelines contained in document A/AC.105/C.1/L.260
A/AC.105/C.1/2004/CRP.30	6	Interim report of the Action Team on Near-Earth Objects
A/AC.105/C.1/2004/CRP.31	6	Draft list of elements to be included in chapters V and VI
<i>Background documents</i>		
United Nations publication, Sales No. E.04.I.6 (ST/SPACE/20)	5	<i>Seminars of the United Nations Programme on Space Applications</i>
United Nations publication, Sales No. E.04.I.5 (ST/SPACE/21)		<i>Highlights in Space 2003</i>

Annex II

Report of the Working Group of the Whole

I. Introduction

1. In accordance with paragraph 19 of General Assembly resolution 58/89 of 9 December 2003, the Scientific and Technical Subcommittee, at its forty-first session, reconvened the Working Group of the Whole. The Working Group of the Whole held 11 meetings, on 18 to 27 February 2004. 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) and the draft provisional agenda for the forty-second session of the Subcommittee, to be held in 2005. At its 11th meeting, on 28 February, the Working Group of the Whole adopted the present report.

2. Muhammad Nasim Shah (Pakistan) was elected Chairman of the Working Group of the Whole at the 603rd meeting of the Scientific and Technical Subcommittee, on 18 February. In his opening remarks, the Chairman reviewed the mandate of the Working Group of the Whole at its session in 2004. The Working Group had before it a list of issues that it should consider (A/AC.105/C.1/2004/CRP.16).

II. United Nations Programme on Space Applications

3. The Working Group of the Whole had before it the report of the Expert on Space Applications (A/AC.105/815) and noted that the Expert had supplemented her report by a statement.

4. The Working Group of the Whole noted the workshops, training courses and long-term fellowships for in-depth training, as well as technical advisory services, as proposed to the Subcommittee in the report of the Expert on Space Applications (A/AC.105/815, annex II).

5. The Working Group noted that the number of fellowships for long-term in-depth training had decreased in the past years and appealed to Member States to consider providing such fellowships for individuals from developing countries. The Working Group noted with appreciation that the European Space Agency had continued to provide fellowship opportunities.

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 documents:

(a) Draft report of the Committee on the Peaceful Uses of Outer Space on the implementation of the recommendations of UNISPACE III: summary of the

implementation of the recommendations of UNISPACE III, achievements of the Committee and its subsidiary bodies through consideration of agenda items introduced via the revised agenda structure and list of reference documents (A/AC.105/C.1/L.272/Add.3, annexes I-III);

(b) Draft report of the Committee on the Peaceful Uses of Outer Space on the implementation of the recommendations of UNISPACE III: summary of the findings, recommendations and actions taken by the action teams established by the Committee (A/AC.105/C.1/L.272/Add.4, A/AC.105/C.1/2004/CRP.6 and A/AC.105/C.1/2004/CRP.15).

7. During the review of the progress made by the action teams, the Chairman of the Working Group of the Whole was assisted by the Chairman of the Working Group established by the Committee to prepare a report for submission to the General Assembly, in order for the Assembly to review and appraise at its fifty-ninth session, in 2004, the implementation of the recommendations of UNISPACE III.

8. The Working Group noted with appreciation that the action teams on an environmental monitoring strategy (recommendation 1), management of natural resources (recommendation 2), weather and climate forecasting (recommendation 4), disaster management (recommendation 7), global navigation satellite systems (recommendation 10), capacity-building (recommendation 17) and increasing awareness (recommendation 18) had presented their final reports to the Subcommittee (see para. 60 of the report of the Subcommittee).

9. The Working Group noted that the Action Team on Sustainable Development (recommendation 11) and the Action Team on Innovative Sources of Financing (recommendation 32) had presented their final reports to the Subcommittee at its fortieth session and the Committee on the Peaceful Uses of Outer Space at its forty-sixth session respectively, in 2003.

10. The Working Group noted that the Action Team on Knowledge-Sharing (recommendation 9) and the Action Team on Near-Earth Objects (recommendation 14) had reported on their progress and the work they had conducted thus far.

11. The Working Group of the Whole expressed its appreciation to all the chairpersons of the action teams, who had exercised leadership in conducting the work associated with the recommendations and had coordinated the activities of the action teams.

IV. Draft provisional agenda for the forty-second session of the Scientific and Technical Subcommittee

12. The Working Group of the Whole noted that, in accordance with General Assembly resolution 58/89, the Scientific and Technical Subcommittee would submit to the Committee its proposal on the draft provisional agenda for the forty-second session of the Subcommittee, to be held in 2005.

13. The Working Group of the Whole noted that the following new work plans had been proposed for inclusion in the agenda of the Subcommittee at its forty-second session:

(a) Near-Earth objects, proposed by the Action Team on Near-Earth Objects (A/AC.105/C.1/2004/CRP.24);

(b) Space-system-based disaster management support, proposed by Canada, China, Colombia, France, India, Indonesia, Morocco and Nigeria (A/AC.105/C.1/2004/CRP.20/Rev.1).

14. The Working Group of the Whole also noted that the following single issue/item for discussion had been proposed for inclusion in the agenda for the forty-second session of the Subcommittee: Support to proclaim 2007 as the International Geophysical Year/International Heliophysical Year, proposed by the United States of America (A/AC.105/C.1/2004/CRP.21).

15. The Working Group agreed that, starting with its forty-second session, in 2005, it would consider an item on space-system-based disaster management support according to the following multi-year work plan:

Year 2005

Review of the recommendations of the Action Team on Disaster Management, with a view to their implementation.*

Review of the status, through presentations by experts, of earthquake prediction capabilities using data and information from satellites.

Presentations on the disaster management support provided by the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (the International Charter "Space and Major Disasters").

Presentations on the launch and the in-orbit services from small satellite constellations for disaster management support by various countries.

Year 2006

Review of the recommendations of the Action Team on Disaster Management, with a view to their implementation.*

Organization of a one-day workshop/symposium on disaster management communications involving communication satellite operators.

Exchange of information with the International Telecommunication Union and other United Nations specialized agencies on their activities on the subject of space-system-based disaster management support, as well as the regional disaster management structures.

Year 2007

A presentation by the disaster management international space coordination organization, if established, on disaster management support coordination at the international level.

* If the recommendations are approved by the Committee on the Peaceful Uses of Outer Space and the General Assembly.

Presentations by the International Charter “Space and Major Disasters” and other initiatives.

Long-term perspectives of various Member States and space agencies on this subject.

16. The Working Group noted that the inclusion of a review of the recommendations of the action team in the draft provisional agenda of the Subcommittee in the work plan on space-system-based disaster management support would be on the understanding that the recommendations of the Action Team on Disaster Management would be adopted by the Committee on the Peaceful Uses of Outer Space and the General Assembly.

17. The view was expressed that, owing to financial constraints, it would not be possible to support any initiatives that involved costs or other obligatory financial contributions by participating member States.

18. The Working Group agreed that, starting with its forty-second session, in 2005, it would consider an item on near-Earth objects according to the following multi-year work plan:

Year 2005

Reports by international organizations, regional bodies and others active in the field of near-Earth object research, including in terms of detection and follow-up activity, in particular, reports and presentations from the International Council for Science (ICSU) (on its multidisciplinary activity on near-Earth objects involving the International Astronomical Union, the Committee on Space Research (COSPAR) and other scientific unions), as well as from the Organisation for Economic Cooperation and Development, on the work they undertake in 2004. Other organizations playing a significant role in the field of near-Earth object research could also be asked to make presentations.

Update the work programme for later years as required.

Year 2006

Reports from Member States and international organizations on their near-Earth object activities, including missions, search and follow-up, as well as plans for future activity.

Establishment of a working group to consider the way forward and, specifically, the possible need for further activity to be carried out nationally, regionally or through international cooperation. Such consideration of cooperation should be taken together with the prospects for harmonization and avenues for broader collaboration.

Update the work programme for the third year as necessary and consider the need for intersessional work.

Year 2007

Continue reporting by Member States and international organizations on the range of activities related to near-Earth objects.

The working group should continue its work and make proposals as necessary, building on its work in the second year.

Consider the range of, and suitable mechanisms for, further work on near-Earth objects.

19. The Working Group agreed to revise the plan for 2005 contained in the work plan for space debris, agreed upon by the Subcommittee in 2001, at its thirty-eighth session, to allow for the Working Group on Space Debris established by the Subcommittee during its forty-first session, to consider, as necessary, the proposals on space debris mitigation and such further related comments as may be received.

20. The Working Group of the Whole recommended the following draft provisional agenda for the forty-second session of the Scientific and Technical Subcommittee, in 2005:

1. General exchange of views and introduction to 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. Items to be considered under work plans:

- (a) Space debris;

(Member States begin annual reporting on a voluntary basis of national activities to implement the proposals on space debris mitigation)^a

(Consideration by the Working Group on Space Debris, as necessary, of the proposals on space debris mitigation and such further related comments as may be received)

- (b) Use of nuclear power sources in outer space;

(Work for 2005 as reflected in the multi-year work plan contained in A/AC.105/804, annex III)

- (c) Space-system-based telemedicine;

(Work for 2005 as reflected in the multi-year work plan contained in A/58/20, para. 138)

- (d) Near-Earth objects;
(Work for 2005 as reflected in the multi-year work plan in para. 18 above)
- (e) Space-system-based disaster management support.
(Work for 2005 as reflected in the multi-year work plan in para. 15 above).

6. Single issues/items for discussion:

- (a) Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including, inter alia, 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;
- (b) Support to proclaim 2007 as the International Geophysical Year/International Heliophysical Year.

7. Draft provisional agenda for the forty-third 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 work plans.

8. Report to the Committee on the Peaceful Uses of Outer Space.

21. The Working Group of the Whole agreed to continue the practice of alternating each year the organization of the symposium by COSPAR and the International Astronautical Federation (IAF) and the symposium to strengthen the partnership with industry. The Working Group agreed that, in 2005, the symposium by COSPAR and IAF would be organized and the industry symposium would be suspended.

22. The Working Group of the Whole recommended that the next COSPAR/IAF symposium, to be held in 2005 during the forty-second session of the Subcommittee, should address high-resolution and hyperspectral satellite data integration for precision farming, environmental monitoring and possible new applications. The Working Group of the Whole agreed that the symposium should be organized during the first week of the forty-second session of the Subcommittee.

V. Other matters

23. The Working Group of the Whole recommended that it be reconvened during the forty-second session of the Scientific and Technical Subcommittee, in 2005.

Notes

^a See A/AC.105/761, para. 130.

Annex III

Report of the Working Group on Space Debris

1. At its 611th meeting, on 24 February 2004, the Scientific and Technical Subcommittee established a working group to consider comments from member States of the Committee on the Peaceful Uses of Outer Space on the proposals on debris mitigation presented by the Inter-Agency Space Debris Coordination Committee (IADC) to the Subcommittee at its fortieth session.
2. The Working Group held one meeting under the chairmanship of the Chairman, Claudio Portelli (Italy), and five meetings under the chairmanship of the Acting Chairman Petr Lála (Czech Republic).
3. The Working Group had before it the following documents for consideration:
 - (a) Note by the Secretariat on the IADC proposals on space debris mitigation: comments received from member States of the Committee on the Peaceful Uses of Outer Space (A/AC.105/820 and Add.1);
 - (b) IADC space debris mitigation guidelines (A/AC.105/C.1/L.260);
 - (c) IADC space debris mitigation guidelines: comments provided by the Russian Federation (A/AC.105/C.1/2004/CRP.22);
 - (d) IADC space debris mitigation guidelines: comments received from the Czech Republic (A/AC.105/C.1/2004/CRP.23);
 - (e) Compilation of comments submitted by member States on the IADC space debris mitigation guidelines contained in document A/AC.105/C.1/L.260 (A/AC.105/C.1/2004/CRP.29 and Add.1).
4. The Working Group considered the IADC space debris mitigation proposals as well as the comments received to the proposals from member States contained in document A/AC.105/C.1/2004/CRP.29.
5. The Working Group recommended to the interested member States, observers to the Subcommittee as well as members of IADC that they get involved in updating the IADC proposals on space debris mitigation for the Working Group's consideration at the next session of the Subcommittee.
6. The Working Group agreed that the way to proceed would be as follows:
 - (a) To request IADC to revise its proposals in view of the comments received from the States members of the Subcommittee and to produce a new draft proposal;
 - (b) To conduct a review cycle among the member States and observers through the Secretariat;
 - (c) To provide the Subcommittee with a new draft of the IADC proposals on space debris mitigation.
7. The Working Group agreed that it would consider the proposals during the forty-second session of the Subcommittee.
8. At its 6th meeting, on 27 February 2004, the Working Group adopted the present report.

Annex IV

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

1. At its 606th meeting, on 19 February 2004, 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 19 February, the Chairman recalled the tasks before the Working Group, as contained in the multi-year work plan for developing an international technically based framework of goals and recommendations for the safety of nuclear power source (NPS) applications in outer space covering the period 2003-2006, which had been endorsed by the Scientific and Technical Subcommittee at its fortieth session (A/AC.105/804, annex III).
3. Under items (a) and (b) of the work plan for 2004, the Working Group was provided with copies of technical presentations that had been made by representatives of the National Aeronautics and Space Administration of the United States of America, the Russian Aviation and Space Agency (Rosaviakosmos) and the European Space Agency to the Scientific and Technical Subcommittee on the content of relevant national (including bilateral and multilateral) space NPS applications planned or currently foreseeable and on applications enabled or significantly enhanced by space NPS.
4. In accordance with item (f) of the work plan for 2003, the Working Group had before it a working paper prepared jointly by the Office for Outer Space Affairs and the International Atomic Energy Agency (IAEA) entitled "Possible organizational plans for potential co-sponsorship of an effort to develop an international space nuclear power source technical safety standard and potential advice of the International Atomic Energy Agency to the Scientific and Technical Subcommittee in the preparation of such a standard" (A/AC.105/C.1/L.268). The Working Group noted that, in accordance with item (c) of the work plan for 2004, the working paper provided a review of the preparation processes and mechanisms specific to IAEA that the Agency could use in order to participate with the Subcommittee in developing a space NPS technical safety framework of goals and recommendations.
5. During the course of its deliberations, the Working Group was provided with an overview of procedures and inter-agency cooperation mechanisms by the observer for IAEA regarding the development of safety standards.
6. In accordance with item (d) of the work plan for 2004, the Working Group had before it a working paper submitted by the United States entitled "Proposed outline of objectives, scope and attributes for an international technically based framework of goals and recommendations for the safety of planned and currently foreseeable space nuclear power source applications" (A/AC.105/C.1/2004/CRP.26).^a
7. Relating to item (e) of the work plan for 2004, the Working Group had before it a working paper submitted by Argentina, France, Pakistan and the United Kingdom entitled "Potential implementation options for establishing an international technically based framework of goals and recommendations for the

safety of planned and currently foreseeable nuclear power source applications” (A/AC.105/C.1/L.271 and Corr.1). The Working Group also had before it a number of additional suggested comments on that working paper. Discussions in the Working Group on those comments resulted in an agreed text (A/AC.105/C.1/L.271/Rev.1).

8. Based on its discussions, the Working Group agreed to advise the Scientific and Technical Subcommittee at its forty-first session to inform IAEA of the possible options, as contained in the working paper (A/AC.105/C.1/L.271/Rev.1), for continued participation by the Agency, recognizing that additional work was required to further develop and evaluate the options and the specific role of IAEA.

9. The Working Group discussed potential options for establishing possible cooperation between the Committee on the Peaceful Uses of Outer Space and IAEA, as contained in the working paper (A/AC.105/C.1/L.271/Rev.1). The possibility of holding a workshop or technical meeting (that would be organized jointly by the Office for Outer Space Affairs and IAEA) could support any of the options. However, the Working Group agreed that all of the options required further development and evaluation.

10. The Working Group noted that the multi-year work plan covering the period 2003-2006 called for a review of information from national and regional space agencies at the Scientific and Technical Subcommittee at its forty-second session, in 2005, on the content of relevant national (including bilateral and multilateral) space NPS programmes and applications planned or currently foreseeable.

11. The Working Group noted that member States and regional space agencies could also submit information on the above topic for inclusion in the annual report on national research on space debris, the safety of space objects with NPS on board and problems relating to their collision with space debris.

12. The Working Group recommended that it continue intersessional work on the topics described in the multi-year work plan for the period 2003-2006. It also recommended that its next informal meeting be held on 7 and 8 June 2004 (and possibly extended up to 9 to 11 June 2004) in Vienna, during the forty-seventh session of the Committee on the Peaceful Uses of Outer Space.

13. In order to prepare properly for the informal meeting, the Working Group requested the Secretariat to make available copies of A/AC.105/C.1/2004/CRP.26 and A/AC.105/C.1/2004/CRP.28 in all the official languages of the United Nations to all members of the Working Group as soon as practicable.^b That would allow both Working Group members and the observer for IAEA to prepare for more in-depth discussions of the possible options at the proposed meeting in June 2004.

14. At its 11th meeting, on 26 February 2004, the Working Group adopted the present report.

Notes

^a To be issued in all the official languages of the United Nations as A/AC.105/L.253.

^b To be issued as A/AC.105/L.253 and A/AC.105/L.254 respectively.