United Nations A/AC.105/1224

General Assembly

Distr.: General
19 February 2020

Original: English

Committee on the Peaceful Uses of Outer Space
Sixty-third session
Vienna, 17–26 June 2020

Report of the Scientific and Technical Subcommittee on its fifty-seventh session, held in Vienna from 3 to 14 February 2020

Contents

V.20-01426 (E) 040320 050320

I. Introduction

1. The Scientific and Technical Subcommittee of the Committee on the Peaceful Uses of Outer Space held its fifty-seventh session at the United Nations Office at Vienna from 3 to 14 February 2020, with Natália Archinard (Switzerland) as Chair.

2. The Subcommittee held 20 meetings.

A. Attendance

3. Representatives of the following 76 States members of the Committee attended the session: Algeria, Argentina, Armenia, Australia, Austria, Azerbaijan, Belarus, Belgium, Bolivia (Plurinational State of), Brazil, Bulgaria, Canada, Chile, China, Colombia, Costa Rica, Cuba, Cyprus, Czechia, Dominican Republic, Ecuador, Egypt, El Salvador, Finland, France, Germany, Greece, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Jordan, Kazakhstan, Kenya, Lebanon, Libya, Luxembourg, Malaysia, Mexico, Morocco, Netherlands, New Zealand, Nigeria, Norway, Oman, Pakistan, Paraguay, Peru, Philippines, Poland, Portugal, Qatar, Republic of Korea, Romania, Russian Federation, Saudi Arabia, Singapore, Slovakia, South Africa, Spain, Sweden, Switzerland, Thailand, Tunisia, Turkey, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United States of America, Uruguay, Venezuela (Bolivarian Republic of) and Viet Nam.

4. At its 915th, 916th and 917th meetings, on 3 and 4 February, the Subcommittee decided to invite observers for Croatia, Guatemala, Honduras and Malta, at their request, to attend the session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that doing so would not involve any decision of the Committee concerning status.

5. At its 915th meeting, the Subcommittee decided to invite the observer for the Sovereign Order of Malta, at its request, to attend the session and to address it, as appropriate, on the understanding that it would be without prejudice to further requests of that nature and that doing so would not involve any decision of the Committee concerning status.

6. Observers for the International Civil Aviation Organization (ICAO), the International Telecommunication Union (ITU), the United Nations Industrial Development Organization, the United Nations Institute for Disarmament Research (UNIDIR), the United Nations Technology Innovation Labs, and the World Meteorological Organization (WMO) attended the session.

7. The session was attended by the observer of the European Union as permanent observer of the Committee and in accordance with General Assembly resolution 65/276 of 2011.

8. The session was attended by observers for the following intergovernmental organizations with permanent observer status with the Committee: Asia-Pacific Space Cooperation Organization (APSCO), European Southern Observatory (ESO), European Space Agency (ESA), European Telecommunications Satellite Organization, Inter-Islamic Network on Space Sciences and Technology (ISNET), and Regional Centre for Remote Sensing of the North African States (CRTEAN).

9. The session was attended by observers for the International Asteroid Warning Network (IAWN) and the Space Mission Planning Advisory Group (SMPAG), in accordance with the agreement of the Subcommittee at its fifty-third session (A/AC.105/1109, para. 182).

10. The session was attended by observers for the following non-governmental organizations having permanent observer status with the Committee: CANEUS International, European Space Policy Institute (ESPI), For All Moonkind, International Academy of Astronautics (IAA), International Association for the

Advancement of Space Safety (IAASS), International Astronautical Federation (IAF), International Astronomical Union (IAU), International Organization for Standardization (ISO), International Society for Photogrammetry and Remote Sensing (ISPRS), International Space University (ISU), Moon Village Association, National Space Society (NSS), Prince Sultan Bin Abdulaziz International Prize for Water (PSIPW), Scientific Committee on Solar-Terrestrial Physics (SCOSTEP), Secure World Foundation (SWF), Space Generation Advisory Council (SGAC), University Space Engineering Consortium-Global (UNISEC-Global) and World Space Week Association (WSWA).

11. 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.1/2020/INF/49.

B. Adoption of the agenda

12. At its 915th meeting, on 3 February, the Subcommittee adopted the following agenda:

1. Adoption of the agenda.
2. Election of the Chair.
3. Statement by the Chair.
4. General exchange of views and introduction of reports submitted on national activities.
5. United Nations Programme on Space Applications.
6. Space technology for sustainable socioeconomic development.
7. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth’s environment.
8. Space debris.
9. Space-system-based disaster management support.
10. Recent developments in global navigation satellite systems.
11. Space weather.
12. Near-Earth objects.
13. Long-term sustainability of outer space activities.
14. Future role and method of work of the Committee.
15. Use of nuclear power sources in outer space.
16. Space and global health.
17. Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union.
18. Draft provisional agenda for the fifty-eighth session of the Scientific and Technical Subcommittee.
19. Report to the Committee on the Peaceful Uses of Outer Space.

C. Election of the Chair

13. At its 915th meeting, the Subcommittee elected Natália Archinard (Switzerland) as its Chair for the period 2020–2021, pursuant to General Assembly resolution 73/91.

D. General statements

14. Statements were made by representatives of the following member States during the general exchange of views: Algeria, Australia, Austria, Brazil, Canada, Chile, China, Colombia, Costa Rica, Cuba, Czechia, Dominican Republic, Egypt, Finland, France, Germany, India, Indonesia, Iran (Islamic Republic of), Iraq, Israel, Italy, Japan, Kazakhstan, Kenya, Luxembourg, Mexico, Morocco, New Zealand, Nigeria, Pakistan, Paraguay, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Singapore, South Africa, Spain, Switzerland, Thailand, Turkey, United Arab Emirates, United Kingdom and United States. Statements were also made by the representative of South Africa on behalf of the Group of African States and by the representative of Egypt on behalf of the Group of 77 and China. The observer for the European Union made a statement. The observer for WMO also made a statement. Additional statements were made by the observers for APSCO, CRTEAN, ESA, ESO, For All Moonkind, IAA, IAF, ISNET, ISPRS, ISU, the Moon Village Association, SGAC, UNISEC-Global and WSWA.

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

(a) “International Space Forum 2019: the Mediterranean chapter – in Reggio Calabria (Italy)”, by the representative of Italy;

(b) “World Space Forum”, by the representative of Austria;

(c) “Baku State University: achievements and perspectives for cooperation in science, education and innovation”, by the representative of Azerbaijan;

(d) “Milestones of the Russian space science programme”, by the representative of the Russian Federation;

(e) “ISU team project ‘Space 2030: space for the future, space for all’”, by the observer for ISU;

(f) “The results of The Hague International Space Resources Working Group”, by the representatives of the Netherlands;

(g) “Update on the Consortium for Execution of Rendezvous and Servicing Operations (CONFERS)”, by the representative of the United States;

(h) “The Space Safety Coalition in the context of international space cooperation”, by the representative of the United States;

(i) “Moon Village Association global survey on Moon exploration”, by the observers for the Moon Village Association;

(j) “Space cooperation through Kibo utilization”, by the representative of Japan;

(k) “New way of international space collaboration: university-based ‘UNISEC-Global’”, by the observer for UNISEC-Global;

(l) “Asia-Pacific Regional Space Agency Forum vision for the next decade in the Asia-Pacific region”, by the representative of Japan;

(m) “India Space Research Organization mission updates 2019”, by the representative of India;

(n) “UNispace Nanosatellite Assembly and Training (UNNATI): India’s training programme on nanosatellite building”, by the representative of India;

(o) “The National Aeronautics and Space Administration’s exploration programme update”, by the representative of the United States;

(p) “Lunar science with the Chandrayaan-2 orbiter”, by the representative of India;

(q) “India’s human spaceflight programme – Gaganyaan: update”, by the representative of India;

(r) “India’s satellite navigation programme and the fourteenth meeting of the International Committee on Global Navigation Satellite Systems (ICG-14)”, by the representative of India.

16. The Subcommittee welcomed the election of Natália Archinard (Switzerland) as Chair for a two-year term, starting in 2020. The Subcommittee expressed its appreciation to the outgoing Chair, Pontsho Maruping (South Africa), for her leadership and contribution to furthering the achievements of the Subcommittee during her term of office.

17. At the 915th meeting, on 3 February, the Chair of the Subcommittee made a statement outlining the work of the Subcommittee at its fifty-seventh session. The Chair underscored the uniqueness and importance of the Committee as the main global international intergovernmental body dedicated to space affairs and underlined that, over the years, relations between spacefaring nations and emerging space nations, increased international cooperation, and contributions to capacity-building in developing countries had created the conditions for progress. Therefore, strengthening coordination and cooperation among all space actors and enhancing the use of space technologies and applications would be essential to support sustained economic growth and the implementation of the 2030 Agenda for Sustainable Development. At the same time, the increasing participation in space activities would generate new challenges that the Committee and its subcommittees would need to address.

18. At the same meeting, the Director of the Office for Outer Space Affairs made a statement in which she reviewed the work done by the Office since the fifty-sixth session of the Subcommittee, including the Office’s contribution to the achievement of the Sustainable Development Goals and the growing working alliances with governmental, intergovernmental and non-governmental organizations and entities, as well as with industry and the private sector. She introduced the current priorities in the work of the Office, which were being pursued following a conceptual approach aimed at achieving gender equality in the space sector. Furthermore, the Director stressed that the global space sector continued to evolve rapidly in all its political, legal and technical aspects and that the United Nations was prepared to work efficiently in that context. In that regard, the newly issued Secretary-General’s bulletin on the organization of the Office for Outer Space Affairs (ST/SGB/2020/1) provided the Office with incentives to further increase its support to Member States.

19. The Subcommittee agreed that it, together with the Committee and the Legal Subcommittee, with the support of the Office for Outer Space Affairs, remained a unique international forum tasked with promoting international cooperation in the exploration and peaceful uses of outer space and offering an appropriate environment to discuss matters that had a great impact on the development of States for the betterment of humankind.

20. The Subcommittee reiterated its commitment to taking a cooperative approach to advancing the exploration and use of outer space, and stressed that only through cooperation would it be possible to fully reap the benefits of space science and technology while ensuring that space activities continued to be conducted for peaceful purposes. In that connection, the Subcommittee agreed that international cooperation and dialogue would be essential for effectively addressing the demands and challenges of space, and for promoting space as a driver of sustainable development to achieve global, regional and national goals.

21. The Subcommittee noted that the work relating to the “Space2030” agenda and its implementation plan would contribute to enhancing and raising awareness of the benefits of space activities and tools for the implementation of the 2030 Agenda for Sustainable Development and the Sustainable Development Goals and targets contained therein.

22. The Subcommittee agreed that space technology continued to be a valuable tool for the benefit of humankind and the achievement of the Sustainable Development Goals, and that it had become an indispensable element of public infrastructure. Therefore, States members of the Committee must combine their efforts to increase the benefits of space and preserve it for future generations.

23. Some delegations expressed the view that, in order to achieve the main objectives of the Subcommittee, it would be important to focus its work on such areas as the building and promotion of technological capacities, the transfer of technology favourable to developing countries, the prevention and mitigation of natural disasters and scientific and technological research in developing countries, within the framework of international cooperation.

24. Some delegations expressed the view that applications of space technology must translate into concrete benefits for developing countries and that, in order to achieve such benefits, the transfer of technology needed to be promulgated through capacity-building and access to technology on terms favourable to developing countries. In that connection, the delegations expressing that view strongly urged States to refrain from promulgating, adopting or applying any unilateral economic, financial or trade measures that could impede access to space and space activities, in particular in developing countries, and called upon the Office for Outer Space Affairs and Member States to increase support to enhance both North-South and South-South cooperation, with a view to facilitating the transfer of technology among nations.

25. The view was expressed that international cooperation should be inclusive and should take into account the various levels of technological development, in particular those of non-spacefaring nations.

26. Some delegations expressed their concern about threats to security in outer space and reiterated the position that an arms race in space was contrary to the principle of the peaceful use of outer space.

27. The view was expressed that, in relation to the disarmament agenda, the Disarmament Commission and the Conference on Disarmament were best positioned to consider the emerging threats to space operations. The delegation expressing that view was also of the view that threats posed by weapons placed in space or based on the Earth, or by the disruption of critical systems by electronic means or by means of energy weapons, should be dealt with under the agenda item on prevention of an arms race in outer space of the Conference on Disarmament and not discussed within the Committee, which, in the meantime, could continue to support developing nations in gaining access to space and encourage those that already had such access to be responsible operators.

28. The view was expressed that the peaceful use of outer space was significantly complicated by the announced plans for the deployment of weapons in outer space, which affected the work of both the Committee and the Subcommittee. The delegation expressing that view called for the prompt initiation, within the Conference on Disarmament, of negotiations on an international binding instrument containing guarantees against the deployment of arms in outer space, which could be based on the existing draft China-Russian Federation Treaty on the Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects.

29. The view was expressed that it was important for Member States to pay more attention to the “No first placement of weapons in outer space” initiative and political obligation, already supported by 22 Member States, which continued to be the only effective instrument for preserving outer space from any weapons.

30. Some delegations expressed the view that the space treaties developed in the framework of the United Nations constituted the cornerstone of the global governance of outer space activities. The delegations expressing that view underlined the need to foster increased international cooperation and establish principles guiding responsible behaviour in, and the sustainability of, space activities. Those delegations also stressed the need to strengthen commitments to avoiding potentially harmful interference with the peaceful exploration and use of outer space and facilitating equitable access to outer space.

31. Some delegations expressed the view that it was important to continue to promote the preservation of a safe, secure and sustainable space environment and the peaceful uses of outer space on an equitable and mutually acceptable basis, and stressed the importance of transparency and confidence-building measures and the need to advocate responsible behaviour in outer space in the framework of the United Nations.

32. Some delegations expressed the view that it was important to develop initiatives that increased confidence and mutual trust, and that, while a legally binding instrument could be considered as a possible option, the most realistic near-term prospect lay in reaching agreement on a voluntary instrument or voluntary norms to establish standards of responsible behaviour across the full range of space activities. Such a voluntary instrument could include a political commitment by States and create a more structured cooperative framework.

33. The Subcommittee expressed its gratitude to the organizers of the following events, held on the margins of the fifty-seventh session of the Subcommittee:

(a) Panel discussion on the theme “European Union-United Nations: 40 years together in Vienna – multilateralism at work”, co-organized by the delegation of the European Union and the Office for Outer Space Affairs;

(b) Panel discussion on the theme “Opportunities and challenges for international cooperation in the implementation of the long-term sustainability (LTS) Guidelines”, organized by SWF;

(c) Ceremony for the signing of the joint statement on space debris by the Office for Outer Space Affairs and the Government of Japan, co-organized by the Office for Outer Space Affairs and the Permanent Mission of Japan;

(d) Evening event entitled “Space traffic management: national and international perspectives”, co-organized by ESPI and UNIDIR;

(e) Side event entitled “Capacity-building through small satellite development: opportunities through KiboCUBE”, co-organized by Japan and the Office for Outer Space Affairs;

(f) Side event entitled “The ITU-R Study Group Circle and Conference System”, organized by ITU;

(g) French-language side event on space and diplomacy, organized by the delegation of France;

(h) Side event entitled “Update on the Office for Outer Space Affairs project on space law for new space actors”, organized by the Office for Outer Space Affairs.

E. National reports

34. The Subcommittee took note with appreciation of the reports by Member States (see A/AC.105/1211, A/AC.105/1211/Add.1 and A/AC.105/1211/Add.2) and the conference room paper (A/AC.105/C.1/2020/CRP.3) submitted for its consideration under agenda item 4, entitled “General exchange of views and introduction of reports submitted on national activities”. The Subcommittee recommended that the Secretariat continue to invite Member States to submit annual reports on their space activities.

F. Summary of the work of the Working Group on the "Space2030" Agenda of the Committee on the Peaceful Uses of Outer Space

35. In accordance with the decision of the Committee on the Peaceful Uses of Outer Space, made at its sixty-first session, in 2018, the Working Group on the "Space2030" Agenda has been established under a new agenda item of the Committee entitled "'Space2030' agenda", which is to remain on the Committee's agenda until the sixty-third session of the Committee, in 2020 (A/73/20, paras. 358–364).

36. The Working Group held its meetings during the fifty-seventh session of the Scientific and Technical Subcommittee in accordance with the mandate given by the Committee. A summary of those meetings is included in annex IV to the present report.

G. Symposium

37. In accordance with the agreement reached by the Subcommittee at its forty-fourth session, in 2007 (A/AC.105/890, annex I, para. 24), and by the Committee at its sixty-second session, in 2019 (A/74/20, para. 185), a symposium organized by the Office for Outer Space Affairs on the topic "Access to space for all" was held on 11 February 2020.

38. The symposium on the topic "Access to space for all" comprised two segments. The first segment, on space for women, was chaired by Markus Woltran of the Office for Outer Space Affairs. Simonetta Di Pippo, Director of the Office for Outer Space Affairs, made introductory remarks to set the scene. The speakers on the first panel were Tamara Pataki of Freie Universität Berlin, Shimrit Maman of Ben-Gurion University of the Negev, Israel, Ersilia Vaudo of ESA, Benoit Delplanque and Fiorella Coliolo of TIMKAT, and Markus Woltran.

39. The second segment, on access to space, was chaired by Jorge Del Rio Vera of the Office for Outer Space Affairs; Luc St-Pierre of the Office for Outer Space Affairs made introductory remarks. The speakers on the second panel were Wang Qian of the China National Space Administration (CNSA); Stefaan De Mey of ESA; P. Kunhikrishnan of the Indian Space Research Organization (ISRO), Akira Kosaka of the Japan Aerospace Exploration Agency (JAXA) and Steven Clarke of the National Aeronautics and Space Administration (NASA) of the United States.

40. The Subcommittee noted with satisfaction that the symposium had contributed to the work of the Subcommittee and to raising awareness of issues concerning inclusiveness in space activities.

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

41. After considering the items before it, the Subcommittee, at its 934th meeting, on 14 February 2020, 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

42. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 5, entitled "United Nations Programme on Space Applications".

43. The representatives of Chile, China, Germany, India, Indonesia, Japan and the Republic of Korea made statements under agenda item 5. The observer for CANEUS

International also made a statement. During the general exchange of views, statements relating to the item were made by representatives of other member States.

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

(a) “ActInSpace 2020 edition: contribution to Access to Space for All”, by the representative of France;

(b) “Space for water”, by the representative of the Office for Outer Space Affairs;

(c) “An overview of the outcomes of the Space Generation Congress 2019”, by the observer for SGAC;

(d) “Chinese international open-sharing satellite assembly, integration and testing (AIT)”, by the representative of China;

(e) “Italian Space Agency (ASI) experiments for the BEYOND mission: applications for a better life in space”, by the representative of Italy.

A. Activities of the United Nations Programme on Space Applications

45. The Subcommittee recalled that the General Assembly, in its resolution 74/82, had recognized the capacity-building activities under the United Nations Programme on Space Applications, which provided unique benefits for Member States, in particular developing countries, participating in those activities.

46. The Subcommittee recognized the unique and continuous contribution made by the United Nations Programme on Space Applications in promoting and supporting the capacity-building activities of Member States, in particular emerging spacefaring nations. In that regard, the Subcommittee acknowledged the instrumental role played by the Office for Outer Space Affairs in implementing the Programme.

47. At the 915th meeting, on 3 February, the Director of the Office for Outer Space Affairs apprised the Subcommittee of the status of the Office’s activities under the United Nations Programme on Space Applications.

48. The Subcommittee noted with appreciation that, since its previous session, in-cash and in-kind contributions, including the provision of staff on a non-reimbursable loan basis, had been offered for the activities of the Office, including the United Nations Programme on Space Applications, by the following: Agustin Codazzi National Geographic Institute; APSCO, Autonomous University of the State of Mexico; Beihang University, China; China Manned Space Agency (CMSA); CNSA; Delta State University, United States; Ecuadorian Space Institute (IEE); European Commission; ESA; Federal University of Santa Maria, Brazil; GeoSAR Mexico (GEOSARMEX); German Federal Ministry for Economic Affairs and Energy; Government of Austria (Federal Ministry for Transport, Innovation and Technology and Austrian Research Promotion Agency); Government of Brazil; Government of Chile; Government of China; Government of India (UNispace Nanosatellite Assembly and Training capacity-building programme of the Indian Space Research Organization (UNNATI)); Government of Luxembourg; Government of the United States (National Oceanic and Atmospheric Administration); Indian Institute of Technology, Roorkee; IAF; Abdus Salam International Centre for Theoretical Physics (ICTP); JAXA; Joanneum Research Forschungsgesellschaft mbH, Austria; Mexican Space Agency; National Commission on Space Activities (CONAE), Argentina; National Disaster Risk Reduction Centre of China; PSIPW; Romanian Space Agency; Scientific and Technological Research Council of Turkey; SWF; Sierra Nevada Corporation; South Asian Association for Regional Cooperation Disaster Management Centre; United Nations Human Settlements Programme; University of Bonn, Germany; University of the South Pacific, Fiji.

49. The Subcommittee noted that, since its last session, in 2019, the Office had concluded memorandums of understanding, funding agreements and framework

agreements in relation to its capacity-building activities, which included the implementation of the United Nations Programme on Space Applications. The Office had also extended agreements with the air force of Chile; CNSA; the Ministry of Digital Development, Defence and Aerospace Industry of Kazakhstan; the Government of Luxembourg; the United States National Oceanic and Atmospheric Administration; the Mohammed bin Rashid Space Centre of the United Arab Emirates; the European Commission; ICAO; ESA; SWF; SGAC; the Asteroid Foundation; the Keldysh Institute of Applied Mathematics of the Russian Academy of Sciences; the University of Bonn, Germany; Airbus Defence and Space GmbH; Avio S.p.A.; and the Sierra Nevada Corporation.

50. The Subcommittee noted that the Government of Japan, through the Kyushu Institute of Technology, and the Government of Italy, through the Politecnico di Torino and the Istituto Superiore Mario Boella, in collaboration with the Istituto Nazionale di Ricerca Metrologica, had continued to provide long-term fellowship programme opportunities for students from developing countries under the United Nations/Japan Long-term Fellowship Programme on Nanosatellite Technologies, and the United Nations/Italy Long-term Fellowship Programme on Global Navigation Satellite Systems and Related Applications, respectively.

51. The Subcommittee noted the Drop Tower Experiment Series, which was a fellowship programme of the Office for Outer Space Affairs, undertaken in collaboration with the Centre of Applied Space Technology and Microgravity and the German Aerospace Center (DLR), in which students could study microgravity by performing experiments in a drop tower. In the current cycle of the fellowship programme, an international team consisting of members from the Polytechnic University of Milan, the University of Seville and the University of Colorado Boulder was awarded the fellowship through a competitive selection process. The announcement of opportunity for the seventh cycle of the Drop Tower Experiment Series was currently available, with the deadline for the submission of applications set for 28 February 2020.

52. The Subcommittee noted the continued collaboration between the Office for Outer Space Affairs and the Government of Japan, in collaboration with JAXA, in implementing the United Nations/Japan Cooperation Programme on CubeSat Deployment from the International Space Station Japanese Experiment Module (Kibo), known as “KiboCUBE”. The programme had been launched in September 2015. As the first country to be awarded under the Programme, Kenya launched its first CubeSat, named 1KUNS-PF, from Kibo in May 2018. CubeSats developed by teams from Guatemala, Mauritius, Indonesia and Moldova, which had been selected for the second, third and fourth rounds of the KiboCube programme, would come after the mission of Kenya. The final selection result for the fifth round was announced on 7 February 2020, on the occasion of the fifty-seventh session of the Subcommittee, with the Central American Integration System (SICA) selected as the winner. The objective of the cooperation programme was to promote international cooperation and capacity-building in space technology and its applications under the Human Space Technology Initiative by providing opportunities for educational and research institutions in developing countries to deploy CubeSats from Kibo.

53. The Subcommittee noted the continued cooperation between the Office for Outer Space Affairs and the Government of China, through CMSA, in implementing the United Nations/China cooperation on the utilization of the China space station initiative under the United Nations Programme on Space Applications and the Human Space Technology Initiative, as part of the Access to Space for All initiative. That innovative and forward-looking cooperation was aimed at providing scientists around the world with an opportunity to conduct their own experiments on board the China space station, thus opening space exploration activities to all countries and creating a new paradigm for building capabilities in space science and technology. The first opportunity to conduct scientific experiments on board the China space station had been open to all Member States, in particular, developing countries. As an outcome of the application and selection process, nine projects were selected for

implementation on board the China space station in the first cycle. The nine projects involved 23 institutions from 17 Member States in the Asia-Pacific region, Europe, Africa, North America and South America.

54. The Subcommittee noted the Hypergravity Experiment Series (HyperGES), which was a fellowship programme of the Office for Outer Space Affairs undertaken in collaboration with ESA. Under the programme, students could better understand and describe the influence of gravity on systems by performing experiments in the Large Diameter Centrifuge facility located at the European Space Research and Technology Centre of ESA in Noordwijk, the Netherlands. The first announcement of opportunity under HyperGES was currently available, with the deadline for the submission of applications set for 31 January 2020. The expected applications had been well received and were under consideration for final selection.

55. The Subcommittee continued to express its concern about the still-limited financial resources available for carrying out the capacity-building activities of the Office, including the United Nations Programme on Space Applications, and appealed to Member States to provide support through voluntary contributions.

56. The Subcommittee noted that the Programme continued to implement the Access to Space for All initiative, which was focused on developing the capacity of Member States to access the benefits of space and which offered to its partners research opportunities to develop the technologies needed to send hardware into space, access to unique ground and orbital facilities for experiments in microgravity and access to space data and training on their use, including on astronomical data.

57. The Subcommittee also noted that the Programme was aimed at promoting, through international cooperation, the use of space technologies and space-related data for sustainable economic and social development in developing countries by establishing or strengthening the capacity in those developing countries to use space technology; raising the awareness of decision makers about the cost-effectiveness and additional benefits to be obtained from such technologies and data; and strengthening outreach activities to increase awareness of those benefits.

58. The Subcommittee further noted the following activities under the United Nations Programme on Space Applications, conducted by the Office in 2019, together with Member States and international organizations:

(a) United Nations/Jordan Workshop on Global Partnership in Space Exploration and Innovation, held in Amman from 25 to 28 March 2019 (A/AC.105/1208);

(b) United Nations/China Forum on Space Solutions, on the theme “Realizing the Sustainable Development Goals”, held in Changsha, China, from 24 to 27 April 2019;

(c) United Nations/Romania International Conference on Space Solutions for Sustainable Agriculture and Precision Farming, held in Cluj-Napoca, Romania, from 6 to 10 May 2019 (A/AC.105/1214);

(d) Workshop on the International Space Weather Initiative, organized by ICTP and supported by the Office for Outer Space Affairs, held in Trieste, Italy, from 20 to 24 May 2019 (A/AC.105/1215);

(e) Workshop on the applications of global navigation satellite systems, organized by the University of the South Pacific and co-sponsored by the Office for Outer Space Affairs and the International Committee on Global Navigation Satellite Systems, held in Suva from 24 to 28 June 2019 (A/AC.105/1216);

(f) United Nations/Austria symposium on the theme “Space: a tool for accessibility, diplomacy and cooperation”, held in Graz, Austria, from 2 to 4 September 2019 (A/AC.105/1220);

(g) Twenty-seventh Workshop on Space Technology for Socioeconomic Benefits, on the theme “Ensuring inclusiveness and equality through space-based

applications and space exploration", organized by IAF and supported by the Office for Outer Space Affairs, held in Washington, D.C., United States, from 18 to 20 October 2019 (A/AC.105/1218).

59. The Subcommittee was informed that the Office for Outer Space Affairs had organized, and continued to organize, capacity-building events, including within the United Nations Programme on Space Applications, with the Governments of Austria, Brazil, India, Mongolia and Spain, as well as with IAF. The Subcommittee was also informed that those events were to cover the following topics: space-based solutions for climate action; astronomy and protection of astronomical observation facilities; global navigation satellite systems (GNSS); space weather; and capacity-building in space technology and applications. The Subcommittee noted that the Office would present reports and further information on the events at its fifty-eighth session, in 2021.

60. The Subcommittee noted that, in addition to the United Nations conferences, training courses, workshops, seminars and symposiums conducted in 2019 and planned for 2020, the Office for Outer Space Affairs had conducted or was planning to conduct other activities under the Programme, with emphasis on:

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

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

(c) Ensuring the mainstreaming of the gender perspective into all of its activities;

(d) Promoting the participation of young people in space activities;

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

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

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

(h) Applying an integrated and cross-sectoral approach to activities, as appropriate.

61. The Subcommittee also noted the highlights of the activities of the regional centres for space science and technology education, affiliated to the United Nations, namely, the African Regional Centre for Space Science and Technology Education – in English Language; the African Regional Centre for Space Science and Technology – in French Language; the Centre for Space Science and Technology Education in Asia and the Pacific; the Regional Centre for Space Science and Technology Education for Latin America and the Caribbean; the Regional Centre for Space Science and Technology Education for Western Asia; and the Regional Centre for Space Science and Technology Education in Asia and the Pacific (China).

62. Some delegations expressed the view that the United Nations had to continue to actively promote its role in the cooperation between developing and developed countries, as well as among developing countries, in order to strengthen the infrastructure and technology of the space sector, in particular through capacity-building, information-sharing and the transfer of technology, which could accelerate development in various aspects of life. The delegations expressing that view were also of the view that it was important to promote collaboration between developing and developed countries in order to ensure equitable access to space science and technology.

B. Regional and interregional cooperation

63. The Subcommittee recalled that the General Assembly, in its resolution 74/82, had emphasized that regional and interregional cooperation in the field of space activities was essential to strengthen the peaceful uses of outer space, assist Member States in the development of their space capabilities and contribute to the implementation of the 2030 Agenda for Sustainable Development. To that end, the Assembly had requested relevant regional organizations and their groups of experts to offer any assistance necessary so that countries could carry out the recommendations of regional conferences. In that regard, the Assembly had noted the importance of the equal participation of women in all fields of science and technology.

64. The Subcommittee noted that the eighth African Leadership Conference on Space Science and Technology for Sustainable Development, on the theme "Prospects and challenges of African space development", had been hosted at the Economic Commission for Africa, in Addis Ababa, from 2 to 4 December 2019. The Congress would in future be held on a biennial basis; the South African National Space Agency would host the next congress in Durban, South Africa, by the end of October 2021.

65. The Subcommittee also noted that the international conference entitled "Space and Sustainable Development 2020" (CEDS 2020) would be held at the Faculty of Physical Sciences and Mathematics of the University of Chile from 1 to 3 July 2020. The objective of the conference would be to contribute to the examination and discussion of four topics: opportunities and challenges presented by space activity; the development of space science and technology; innovation and industrial development; and the use of space as a global challenge and its contribution to sustainable development.

66. The Committee further noted that the twenty-sixth session of the Asia-Pacific Regional Space Agency Forum, on the theme "Advancing diverse links towards a new space era", had been held in Nagoya, Japan, from 26 to 29 November 2019. The twenty-seventh session of the Forum would be held in Viet Nam in the fall of 2020.

67. The Subcommittee noted that, over the past decade, APSCO had provided benefits to its member States through various cooperative activities aimed at making full use of its uniquely wide geographical coverage area and effectively sharing its resources.

III. Space technology for sustainable socioeconomic development

68. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 6, entitled "Space technology for sustainable socioeconomic development".

69. The representatives of Canada, China, Belarus, France, Germany, India, Indonesia, Iran (Islamic Republic of), Italy, Japan, Kenya, Pakistan, Peru, the Russian Federation, Switzerland and the United Arab Emirates made statements under agenda item 6. During the general exchange of views, statements relating to the item were made by representatives of other member States.

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

(a) "SIRIUS 20/21: the upcoming eight-month mission", by the representative of the Russian Federation;

(b) "Small satellite development for scientific Earth observation and data utilization in the Philippines", by the representative of the Philippines;

(c) "From boosting space education to boosting space economy", by the representative of Switzerland;

(d) “Training course for the African countries at the Broglio Space Centre in Malindi”, by the representative of Italy;

(e) “ISU team project ‘Space for Urban Planning’”, by the observer for ISU;

(f) “Pakistan’s space activities for socioeconomic uplift”, by the representative of Pakistan;

(g) “Spin-in and procurement support as key components for industry development in emerging space countries”, by the representative of Slovakia;

(h) “African development satellite initiative”, by the representative of Egypt;

(i) “A global initiative to improve living conditions for indigenous populations using space technologies”, by the observer for CANEUS International.

71. The Subcommittee had before it a conference room paper containing a report on the United Nations/Austria World Space Forum on the topic “Access to space for all”, held in Vienna from 18 to 22 November 2019 (A/AC.105/C.1/2020/CRP.11), to be issued, in all official languages of the United Nations, for the consideration of the Committee at its sixty-third session, in June 2020.

72. The Subcommittee noted that the World Space Forum held in 2019, having built upon the series of high-level forums organized by the Office for Outer Space Affairs jointly with member States, had continued to promote discussions on the role of space science and technology in fostering global development, bringing together stakeholders from the broader space community, including from governmental institutions, international intergovernmental organizations and non-governmental organizations, as well as industry, the private sector and academia. The bringing together of representatives from the Vienna-based diplomatic community and the broader space sector was welcomed in particular. The Subcommittee also noted that Austria would host the Forum in 2021 and subsequently every other year for the near future.

73. The Subcommittee noted that United Nations/China Forum on Space Solutions, on the theme “Realizing the Sustainable Development Goals”, organized by the Office for Outer Space Affairs jointly with the Government of China and CNSA, had greatly promoted new partnerships between users and providers of space solutions, significantly boosted international space cooperation and contributed to the realization of the Sustainable Development Goals.

74. The Subcommittee noted the value of space technology and applications, as well as of space-derived data and information, to sustainable development, including in terms of improving the formulation and subsequent implementation of policies and programmes of action relating to environmental protection, land and water management, the development of degraded land and wastelands, urban and rural development, marine and coastal ecosystems, health care, climate change, disaster risk reduction and emergency response, energy, infrastructure, navigation, transport and logistics, rural connectivity, seismic monitoring, natural resources management, snow and glaciers, biodiversity, agriculture and food security.

75. The Subcommittee also noted, in that context, the information provided by States on their use of space-based platforms and satellite systems in support of sustainable socioeconomic development, as well as actions and programmes aimed at increasing society’s awareness and understanding of the applications of space science and technology for meeting development needs, and on cooperation activities aimed at building capacity through education and training on the use of space science and technology applications for sustainable development.

76. In that regard, the Subcommittee noted that the Committee, and its subcommittees, with the support of the Office for Outer Space Affairs, had a fundamental role to play in promoting international cooperation and capacity-building in support of socioeconomic development.

77. Some delegations expressed the view that space science and technology had the potential to ignite technological advancement in developing countries, and that it was therefore essential to strengthen existing opportunities and create new ones to ensure that more and more States had access to space and to the benefits derived from space activities, including by enhancing international cooperation in the development of domestic space infrastructure, taking into account the need to stimulate industry and the space sector overall, in particular in developing countries.

78. The view was expressed that it was necessary to build national capacities in the handling of space-derived data and information, enhance international cooperation in sharing remote sensing and geospatial data, promote regional and international research, and facilitate the transfer of knowledge, technology and science and the sharing of experiences in using space-based technology services to achieve sustainable development.

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

79. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 7, entitled "Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth's environment".

80. The representatives of Canada, China, Colombia, India, Indonesia, Israel, Japan, Mexico, the Russian Federation, South Africa, the United States and Viet Nam made statements under agenda item 7. The observer for PSIPW also made a statement under the agenda item. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

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

(a) "System of Earth remote sensing in Space Research Institute (IKI) and international collaboration", by the representative of the Russian Federation;

(b) "ASI's Earth observation missions for environment monitoring", by the representative of Italy.

82. In the course of the discussions, delegations reviewed national, bilateral, regional and international programmes on remote sensing, in particular in the following areas: natural resource management; forest management and forest fire assessment and response; fishery management; environmental monitoring; urban planning; rural development and human settlement; infrastructure development; weather forecasting, and cyclogenesis and storm tracking; disaster management support; cartography applications; oceanography applications for altimetry and ocean surface wind vector measurements; wetland assessment and monitoring; watershed monitoring and development planning, and irrigation infrastructure assessment; paddy monitoring; agriculture, horticulture, and crop production and forecasting; snow and glacier monitoring and inventory assessment; highway toll applications and road use; monitoring of hydrocarbon, water and power transmission infrastructure; and subsurface water monitoring and leakage assessment.

83. Some delegations expressed the view that the importance of remote sensing of the Earth could not be overstated, as remote sensing technology and its applications had proved useful and essential for improving the daily lives of people and in tackling global issues such as climate change and environmental protection. The delegations expressing that view also expressed the view that international collaboration in obtaining and using remote sensing data was essential to effectively addressing those issues.

84. Some delegations expressed the view that technological research and business development in the area of remote sensing services and applications was facilitated

by the implementation, in accordance with international space law, of national regulatory frameworks that provided avenues for private sector entities to obtain authorization to conduct remote sensing activities through licensing and oversight procedures that appropriately balanced commercial interests with national security priorities.

85. The view was expressed that commercial ventures that leveraged remote sensing technology and applications added significant value to their products and services in the fields of business analysis, precision agriculture, water quality management and infrastructure analysis, including by using synthetic aperture radar technology to identify groundwater leakages and provide municipalities and engineers with actionable insights to maintain public utilities and conserve water.

86. Some delegations expressed the view that, while national remote sensing activities and missions were conducted primarily for governmental purposes, providing international partners with open and free access to data and images, as well as direct satellite downlinks, encouraged and promoted the use of remote sensing technology applications to support societal and commercial development.

87. Some delegations expressed the view that the development of mobile device applications that make use of remote sensing data, products and images was useful in addressing the diverse challenges faced by end users, such as in the identification, assessment and emergency management of forest fires, as well as in providing hands-free access to coastal weather and fishery information, and that further development in that field would yield additional benefits.

88. The view was expressed that the Office for Outer Space Affairs should further develop and promote capacity-building initiatives in order to improve, expand and facilitate access to information and data obtained from space activities involving remote sensing and its uses.

89. The Subcommittee noted the continued support for the activities of CEOS and that ISRO was serving as Chair of CEOS for 2020. The Subcommittee also noted that the thirty-fourth plenary session of CEOS would be held in Ahmedabad, India, from 19 to 21 October 2020.

90. The Subcommittee further noted the continued support for the activities of the Group on Earth Observations (GEO) and that the next GEO plenary meeting and ministerial summit would be held in Port Elizabeth, South Africa, from 2 to 6 November 2020.

V. Space debris

91. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 8, entitled “Space debris”.

92. The representatives of Austria, Canada, China, Colombia, Germany, India, Indonesia, Japan, Mexico, Pakistan, Peru, the Russian Federation, Thailand, the United Arab Emirates and the United States made statements under agenda item 8. The observers for UNIDIR and ESA also made statements. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

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

(a) “Space debris mitigation activities at ESA in 2019”, by the observer for ESA;

(b) “Current status of Inter-Agency Space Debris Coordination Committee (IADC) activities”, by the representative of France;

(c) “The 2019 United States Government orbital debris mitigation standard practices”, by the representative of the United States;

(d) “Overview of recent activities on space situational awareness in the Republic of Korea”, by the representative of the Republic of Korea;

(e) “Russian Federation space debris mitigation activities in 2019”, by the representative of the Russian Federation;

(f) “2019 space debris activities in France: highlights”, by the representative of France;

(g) “Space safety and the IAASS Manifesto”, by the observer for IAASS;

(h) “Space debris laser ranging: recent progress and new applications”, by the representative of Austria.

94. The Subcommittee had before it information on research on space debris, the safety of space objects with nuclear power sources on board and problems relating to the collision of such objects with space debris, in replies received from Member States and international organizations (see A/AC.105/C.1/116 and A/AC.105/C.1/116/Add.1).

95. The Subcommittee agreed that addressing space debris continued to be critically important to the long-term sustainability of space activities, and that international collaboration remained essential to ensure the coordination of operational best practices, mitigation strategies and space debris research activities. In that regard, the Subcommittee continued to play an important role by promoting dialogue, information-sharing and cooperation, with a view to providing tangible solutions and practical recommendations for action.

96. The Subcommittee noted with appreciation that, at its current session, the Office for Outer Space Affairs and the Government of Japan had signed a joint statement expressing their intention to cooperate in addressing the challenge of space debris, and to work together to increase global understanding of and the consolidation of knowledge on space debris, disseminate information on the latest research, cooperate with space actors to support the implementation of existing mitigation guidelines, and strengthen international cooperation on and global awareness of space debris mitigation.

97. The Subcommittee noted with satisfaction that the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space continued to be an important source of guidance for space actors in controlling the space debris problem for the safety of space missions, and, in that connection, that many States and international intergovernmental organizations were implementing space debris mitigation measures consistent with the Space Debris Mitigation Guidelines of the Committee and/or the Space Debris Mitigation Guidelines of IADC and were using relevant ISO standards, and that a number of States had harmonized their national space debris mitigation standards with those guidelines.

98. The Subcommittee acknowledged the important work and contribution of IADC in the field of space debris.

99. Some delegations expressed the view that the further development of guidelines for space debris mitigation would be necessary given the changing uses of space, and that, in particular, the rapid increase in the number of satellites launched into low Earth orbit needed to be taken into account. In that connection, the delegations expressing that view were also of the view that IADC, as the primary forum for technical and scientific expertise on all matters relating to space debris, should continue to play the major role in the further development of technical guidelines for space debris mitigation.

100. The Subcommittee noted with appreciation that States had undertaken a number of measures to mitigate space debris, such as improving the design of launch vehicles and spacecraft, developing special software, re-orbiting satellites, passivation, life extension, end-of-life operations and disposal. The Subcommittee noted the evolving

technologies related to the in-orbit robotic servicing of satellites and the extension of satellite lifespans.

101. The Subcommittee noted the development and application of new technologies and ongoing research related to space debris mitigation; collision avoidance; protecting space systems from space debris; limiting the creation of additional space debris; re-entry and collision avoidance techniques; the measurement, characterization, continuous monitoring and modelling of space debris; the prediction, early warning and notification of space debris re-entry and collision; and space debris orbit evolution and fragmentation.

102. The Subcommittee agreed that national and international collaboration in the area of space debris continued to be imperative in order to ensure a common understanding of existing threats and to maximize resources invested in that area.

103. Some delegations expressed the view that the Subcommittee should continue to consider the reports of IADC on its technical work and that those inputs should be taken into account in the Subcommittee's deliberations on the agenda item on space debris, as well as in the discussions on the topics to be addressed by the newly established Working Group on the Long-term Sustainability of Outer Space Activities.

104. Some delegations expressed their serious concern over the placement of large and mega-constellations of satellites and its implications, and, in that connection, expressed the view that that topic should be treated by the Subcommittee as a priority, with a view to mitigating the creation of space debris.

105. Some delegations expressed the view that the lack of consensus on the way to remove space debris was a matter of concern and that the major contributors to space debris must take appropriate responsibility in its removal under an internationally agreed framework.

106. The view was expressed that the generation of space debris, in the short term, would restrict the possibility of access to space in safe conditions and that the free access to outer space could be precluded if no mechanisms were found to remove space debris or return it to Earth.

107. The view was expressed that the operational community would need to continue to evolve and adapt in the coming years as the number of space assets continued to grow, new tracking systems with the ability to track smaller debris objects came online and new propulsion technologies became more widespread. In that connection, continued technical and policy coordination within the international community would be essential to ensuring the long-term sustainability of space operations.

108. The Subcommittee expressed its gratitude to the Office for Outer Space Affairs for continuing to maintain the compendium of space debris mitigation standards and urged all Member States and international organizations to continue to routinely review and update the compendium as necessary to help promote transparency and spaceflight safety.

109. The Subcommittee took note of paragraph 13 of General Assembly resolution 74/82 and agreed that Member States and international organizations having permanent observer status with the Committee should continue to be invited to provide reports on research on space debris, the safety of space objects with nuclear power sources on board, problems relating to the collision of such space objects with space debris and the ways in which debris mitigation guidelines were being implemented.

VI. Space-system-based disaster management support

110. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 9, entitled "Space-system-based disaster management support".

111. The representatives of Belarus, Canada, China, Colombia, Germany, India, Indonesia, Iran (Islamic Republic of), Japan, Mexico, Peru, the Republic of Korea, the Russian Federation and the United States made statements under agenda item 9. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

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

(a) "EO-ALERT: a novel satellite architecture for detection and monitoring of extreme events in real time", by the representatives of Austria;

(b) "Flood monitoring and damage assessment in agriculture by space remote sensing", by the representative of the Islamic Republic of Iran.

113. The Subcommittee had before it the following:

(a) Report on activities carried out in 2019 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (A/AC.105/1212);

(b) Note by the Secretariat containing the report on the Bonn international conference on the theme "Space-based solutions for disaster management in Africa: challenges, applications, partnerships" (A/AC.105/1223).

114. The Subcommittee noted with satisfaction the progress achieved through activities held in 2019 in the framework of the United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER), including the international conference on the theme "Space-based solutions for disaster management in Africa: challenges, applications, partnerships" held in Bonn, Germany, from 6 to 8 November 2019, and the continuing advisory and other support provided through UN-SPIDER in the field of emergency response efforts.

115. The Subcommittee noted that, with the continued support of its network of partners, representatives of UN-SPIDER had carried out the following activities: (a) a technical advisory mission to Peru; (b) follow-up activities in Cameroon, Ecuador, the Lao People's Democratic Republic, Mongolia, Myanmar and Sri Lanka; and (c) an advisory support activity in Ethiopia. During those activities, specific requirements had been addressed and follow-up to the UN-SPIDER technical advisory missions carried out in previous years had been provided.

116. The Subcommittee noted with satisfaction the capacity-building efforts that had been undertaken in generating tailor-made space-based information for countries affected by landslides (Cameroon, Colombia and Guatemala) and countries experiencing volcanic activity (Guatemala and Indonesia).

117. The Subcommittee noted that UN-SPIDER had co-organized two training courses for project managers on how to use the Charter on Cooperation to Achieve the Coordinated Use of Space Facilities in the Event of Natural or Technological Disasters (International Charter on Space and Major Disasters), one in Beijing, on 10 September 2019, and one in Bonn, on 5 November.

118. The Subcommittee also noted the planned outreach activities of the Office for Outer Space Affairs, represented by UN-SPIDER, and its developing partnerships with United Nations entities, international organizations and Member States to continue to promote the use of space-based tools and information in global and regional initiatives, such as those carried out under the Sendai Framework for Disaster Risk Reduction 2015–2030, the 2030 Agenda for Sustainable Development and the Paris Agreement.

119. Some delegations expressed their satisfaction with the ongoing activities of States members of the Committee to increase the availability and use of space-based solutions in support of disaster risk reduction. Those activities included promoting the use of emergency Earth observation and cartographic data during natural or technological disasters under the International Charter on Space and Major Disasters,

the Sentinel Asia initiative and the Copernicus Emergency Management Service. In that regard, it was noted that Eswatini, Ghana and Tunisia had become members of the Charter and that UN-SPIDER was working with Costa Rica, South Africa, Viet Nam and Zimbabwe on becoming authorized users.

120. The view was expressed that the activities conducted by several Member States, whether directly or through the International Charter on Space and Major Disasters or Sentinel Asia, to facilitate access to satellite imagery and space-based information had successfully supported disaster response efforts following Cyclone Idai in Zimbabwe and floods in Cameroon, Iran (Islamic Republic of) and South Africa. The delegation expressing that view was also of the view that efforts to raise awareness of the Charter and the Copernicus Emergency Management Service were important for encouraging States to use such services.

121. The view was expressed that open access to critical data, whenever and wherever possible, improved information products and decision tools used to mobilize early disaster management action. The delegation expressing that view was also of the view that that underlined the importance of regional partnerships in addressing the transboundary consequences of disasters and finding solutions.

122. The view was expressed that UN-SPIDER should strengthen its technical support programmes in developing countries and raise awareness among Member States and their civil protection agencies of the data and relevant instruments at their disposal through its knowledge portal.

123. The view was expressed that the activities of Sentinel Asia, in which more than 100 organizations in the Asia-Pacific region participated and which had conducted approximately 300 emergency observations since its launch in 2006, continued to be highly useful. The delegation expressing that view was also of the view that Sentinel Asia contributed greatly to strengthening preparedness for, and thus resilience to, emergencies, in line with the Sendai Framework.

124. The view was expressed that space-based emergency mapping could be achieved more effectively with the help of international collaboration and that a multilateral approach to disaster and climate change management should be encouraged.

125. Some delegations expressed the view that, in the context of disaster risk reduction, additional research on the negative effects of space weather on infrastructure and communication systems was necessary to better understand the phenomenon and its impacts and that, in the context of disaster management, strengthening coordination among national institutions and organizations was needed.

126. The Subcommittee noted with satisfaction other activities of Member States in the area of disaster management and risk reduction, such as the promotion, with the support of UN-SPIDER, of the universal access initiative of the International Charter on Space and Major Disasters and the provision of national and regional data portals for the dissemination of information in near real time.

127. Some delegations expressed the view that search and rescue missions were a useful part of disaster management, as was the commitment of providers of search and rescue data for disaster management through the International Charter on Space and Major Disasters. It was highlighted that the activities of the International Satellite System for Search and Rescue and its Search and Rescue Satellite-Aided Tracking System saved thousands of lives every year.

128. The Subcommittee noted the in-kind contributions, including the provision of experts, made in 2019 by States members of the Committee and regional support offices to the technical advisory missions and related activities conducted by the Office for Outer Space Affairs through UN-SPIDER, as well as their efforts to share experiences with other countries.

129. The Subcommittee noted with appreciation the voluntary contributions made to the Office for Outer Space Affairs and its UN-SPIDER programme by member States, including the cash contributions from China and Germany, and again encouraged

other member States to provide to the activities and programmes of the Office, including UN-SPIDER, all necessary support on a voluntary basis, including increased financial support, in order to enable it to better respond to requests for assistance by Member States and to fully carry out its workplan over the next years.

VII. Recent developments in global navigation satellite systems

130. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 10, entitled "Recent developments in global navigation satellite systems", and reviewed matters related to the International Committee on Global Navigation Satellite Systems (ICG), the latest developments in the field of global navigation satellite systems (GNSS) and new GNSS applications.

131. The representatives of China, India, Indonesia, Iran (Islamic Republic of), Japan, Mexico, the Republic of Korea, the Russian Federation and the United States made statements under agenda item 10. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

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

(a) "Status of KPS plans: Korea Positioning System", by the representative of the Republic of Korea;

(b) "Education and training activities: APSCO Student Small Satellite project", by the observer for APSCO.

133. The Subcommittee had before it the following documents:

(a) Note by the Secretariat on the fourteenth meeting of the International Committee on Global Navigation Satellite Systems (A/AC.105/1217);

(b) Report of the Secretariat on activities carried out in 2019 in the framework of the workplan of the International Committee on Global Navigation Satellite Systems (A/AC.105/1213).

134. The Subcommittee noted that the Office for Outer Space Affairs maintained a comprehensive information portal for ICG and users of GNSS services and continued to play an active role in facilitating cooperation and communication among the providers and users of GNSS.

135. The Subcommittee expressed its appreciation to the Office for its efforts in promoting the use of GNSS through its capacity-building and information dissemination initiatives, in particular in developing countries.

136. The Subcommittee noted with satisfaction that the fourteenth meeting of ICG and the twenty-third meeting of the Providers' Forum, organized by ISRO on behalf of the Government of India, had been held in Bengaluru, India, from 8 to 13 December 2019.

137. The Subcommittee also noted with satisfaction that concrete progress had been made by ICG, in particular with regard to compatibility and interoperability, and in the area of GNSS spectrum protection and interference detection and mitigation. It was noted that ICG aimed to create an interoperable, multi-GNSS space service volume that would enable improved navigation for future space operations beyond the geostationary orbit or even lunar missions.

138. The Subcommittee noted that the fifteenth meeting of ICG would be hosted by the Office for Outer Space Affairs in Vienna from 14 to 18 September 2020. The Subcommittee also noted the expression of interest by the United Arab Emirates to host the sixteenth meeting, in 2021.

139. The Subcommittee also noted that the Global Positioning System (GPS) of the United States remained an important pillar in the expansion of GNSS coverage and use throughout the world, and that the United States intended to continue to improve

GPS accuracy and availability through the enhanced performance of modernized satellites, and to broadcast GPS signals free of direct user charges.

140. The Subcommittee further noted that the United States had continued to work on the integration of the next generation of satellites, GPS Block III, to provide more capability and improved service with the broadcast of the fourth civil signal, L1C. It was noted that the first of those satellites had become operational in January 2020, thus marking a significant milestone for the GPS programme. In addition to making enhancements to the space segment, an upgraded ground control system, called "OCX" (which stands for operational control system), was being developed. The first phase of the programme was operational and was supporting the new GPS Block III satellites, and further performance improvements and increased capabilities for all users of the system were anticipated.

141. The Subcommittee noted that the civilian services of the Global Navigation Satellite System (GLONASS) of the Russian Federation were provided free of direct user charges and were available to all users on a continuous, worldwide basis, and that the GLONASS constellation was upgraded on an ongoing basis, with new satellites added annually. It was noted that, in 2020, the programme of the GLONASS-M series satellites would be completed and the launch of the GLONASS-K series satellites would continue. There were also plans to launch a new series of satellites, GLONASS-K2, which would provide code division multiple access (CDMA) signals in the L1, L2 and L3 bands and the traditional signals with frequency division multiple access (FDMA).

142. The Subcommittee also noted that the GLONASS open service performance standard, specifying the minimum level of performance, had been published in 2019. The standard was to serve as a basic document for inclusion of the GLONASS system in various international standards on the use of navigation technology, primarily those of ICAO, the International Maritime Organization, the Radio Technical Commission for Aeronautics and the European Organization for Civil Aviation Equipment. The revised edition of the GLONASS interface control document, containing recommended models for the evaluation of tropospheric and ionospheric delays that would further improve navigation accuracy, was expected to be released by the end of 2020.

143. The Subcommittee further noted that, while providing autonomous navigation and positioning services, Galileo, the European Satellite Navigation System, was interoperable with other GNSS. It was noted that the Galileo system, once fully operational, would offer high-performance services and provide new business opportunities in a wide variety of applications.

144. The Subcommittee noted that Galileo was the first global navigation satellite system to offer global search and rescue capability, launched as part of the system's initial services. The service was available at sea, in the mountains, across the desert and in the air, within the Galileo search and rescue service coverage area. That essential Galileo service had been helping operators respond to distress signals faster and more efficiently. The Galileo search and rescue service was also Europe's contribution to the upgrade of the International Satellite System for Search and Rescue (COSPAS-SARSAT), an international satellite-based system for search and rescue distress alert detection and information distribution.

145. The Subcommittee also noted that the BeiDou Navigation Satellite System (BDS), a global navigation satellite system operated by China, was providing all users with high-precision and high-reliability positioning, navigation and timing services. It was noted that the BeiDou system had been developed in three stages, named BDS-1, BDS-2 and BDS-3, respectively, and had begun to provide a global service in December 2018. It was noted that, by means of its upgraded intelligent operation and maintenance capabilities, BDS-3 had provided stable and accurate services, boosting positioning accuracy to five metres or less.

146. The Subcommittee further noted that the 22-nanometre process navigation and positioning chip supporting the new signal frequencies introduced in BDS-3 had a smaller volume, lower power consumption and higher accuracy, and had realized the large-scale application of the system. The new generation of BDS system-related products, including high-precision antennas, circuit boards and broadband radio frequency chips, had been developed. The BDS systems had been increasingly applied in emerging fields such as the industrial Internet of things and the Internet of things, as well as autonomous driving, parking and logistics.

147. The Subcommittee noted that the GPS-aided Geostationary Augmented Navigation System (GAGAN) had been developed by ISRO, together with the Airports Authority of India, in an effort to deploy and certify an operational satellite-based augmentation system. GAGAN had been the first such system in the world to serve the equatorial region and was providing satellite-based navigation services that offered the accuracy and integrity required for civil aviation applications. GAGAN services had also been extended to enable the broadcasting of messages within its coverage area by means of three GAGAN geostationary orbit satellites, including messages relating to fishing in deep seas, meteorological information, alert and early warning of natural disasters, search and rescue, humanitarian relief and life safety.

148. The Subcommittee also noted that ISRO had implemented an independent regional navigation system, the Indian Regional Navigation Satellite System, also known as “Navigation with Indian Constellation” (NavIC), to provide positioning, navigation and timing services for users throughout the Indian region. The system comprised a constellation of seven satellites, three in geostationary equatorial orbit and four in geosynchronous orbit. A signal-in-space interface control document had been released to the public to facilitate research and development and aid the commercial use of the NavIC signals for navigation-based applications.

149. The Subcommittee further noted that the satellite-based augmentation system of Japan, the Quasi-Zenith Satellite System (QZSS), also known as Michibiki, had been operated as a four-satellite constellation, with three satellites in inclined geosynchronous orbit and one in geostationary orbit, since November 2018. QZSS was currently providing three types of services: a service complementing GPS that transmitted ranging signals from satellites; a service that augmented GNSS by providing error corrections through QZSS; and a short messaging service to contribute to disaster risk reduction. It was noted that the constellation of seven satellites, to be completed by 2023, would enable sustainable positioning.

150. The Subcommittee noted that the Republic of Korea was developing an advanced satellite-based augmentation system named the Korea Augmentation Satellite System, which would be completed by the end of 2022 and would begin providing safety-of-life services in 2023. It was also noted that a regional satellite navigation system, the Korea Positioning System, would be built and deployed over the Korean Peninsula, with a view to improving positional, navigational and timing performance.

151. The Subcommittee noted with appreciation that Indonesia and Mexico had reported on their projects and activities focused on helping to bring GNSS technology to the widest possible user community.

VIII. Space weather

152. In accordance with General Assembly resolution 74/82, the Scientific and Technical Subcommittee considered agenda item 11, entitled “Space weather”.

153. The representatives of Austria, Canada, China, Colombia, Germany, India, Indonesia, Iran (Islamic Republic of), Japan, Mexico, Pakistan, Peru, the Republic of Korea, the Russian Federation, South Africa, Thailand and the United States made statements under agenda item 11. The observer for WMO also made a statement under

the item. During the general exchange of views, statements relating to the item were made by representatives of other member States.

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

(a) “PRESTO (predictability of the variable solar-terrestrial coupling): the new scientific programme for SCOSTEP”, by the observer for SCOSTEP;

(b) “Japan’s activities on space weather”, by the representative of Japan;

(c) “PECASUS: global operational space weather forecasting for the mitigation of space weather effects”, by the representative of Finland;

(d) “System and service for management of space weather risk in Korea”, by the representative of the Republic of Korea;

(e) “2019 space weather activities in Ukraine”, by the representative of Ukraine;

(f) “Space weather monitoring in Pakistan”, by the representative of Pakistan.

155. The Subcommittee noted that space weather, caused by solar variability, was an international concern, owing to its potential threat to space systems, human space flight, the safety of civil aviation and the ground- and space-based infrastructure upon which society increasingly relied. As such, it needed to be addressed in a global manner, through international cooperation and coordination, so that potentially severe space weather events could be predicted and their impact mitigated to guarantee the long-term sustainability of outer space activities.

156. The view was expressed that it was necessary for countries with developed space weather capacity to cooperate with emerging spacefaring nations by sharing lessons learned on national space weather plans, evaluations of the risks and impacts of space weather, and other analyses necessary for the development of investigations to ensure the safety of space systems, crewed space flights and other developing space missions.

157. The Subcommittee noted a number of national and international activities undertaken in space weather research, training and education to improve the scientific and technical understanding of adverse space weather effects, with the aim of strengthening space weather resilience.

158. The Subcommittee expressed its appreciation for the efforts of the Expert Group on Space Weather to enhance collaboration and coordination between national and international space weather organizations.

159. Some delegations expressed the view that activities related to space weather could have an impact on aviation and, in particular, could potentially interrupt high-frequency communications and satellite navigation.

160. In that regard, the Subcommittee noted the establishment of the Pan-European Consortium for Aviation Space Weather User Services, which had been selected by ICAO as one of the three global space weather information centres tasked with providing to the civil aviation sector information about space weather that could potentially affect communications, navigation and the health of passengers and crew. The Subcommittee also noted the establishment of regional warning centres for space weather in China, the Russian Federation and South Africa.

161. The view was expressed that the work to develop international standards for the exchange of space weather data was important and that the Guidelines for the Long-term Sustainability of Outer Space Activities served as an excellent example in that regard.

162. The view was expressed that the Committee and other international organizations should conduct activities to strengthen their role in promoting synergy in space weather. It was anticipated that such activities, including the updating of

information in a timely manner, would be conducted continuously and would involve various countries.

163. The view was expressed that artificial intelligence could improve the forecasting process and the stability and accuracy of space weather forecasts.

164. The Subcommittee noted with appreciation the workshop on the International Space Weather Initiative, supported by the Office for Outer Space Affairs, held at ICTP in Trieste, Italy, from 20 to 24 May 2019 (see A/AC.105/1215), which had helped to raise awareness among Member States about the importance of the impact of space weather. The Subcommittee welcomed the proposal to hold a workshop on space weather in November 2020 under the aegis of the United Nations.

165. At the 924th meeting of the Subcommittee, on 7 February, the Rapporteur of the Expert Group on Space Weather presented a report on the progress made by the Expert Group during its meetings held on the margins of the fifty-seventh session of the Subcommittee.

166. The Expert Group recognized a continuing need for better coordination and collaboration among national and international space weather actors to address the threats arising from the adverse impacts of space weather, given the ever-increasing understanding of the importance and potentially catastrophic impacts of space weather.

167. The Expert Group recognized the importance of ensuring the coordination of national space weather activities with relevant international organizations, including WMO and ICAO, in particular with their respective permanent representatives. The Expert Group noted in particular the importance of the work of WMO, including the development of its technical and regulatory framework for space weather and the opportunities offered by its Integrated Global Observing System and related systems, as well as the importance of Member States' engagement with the Committee on Space Research in developing international space weather action teams for scientific research in support of transitional efforts related to research for operations, and the designation by ICAO of global space weather information providers for international air navigation, which became operational on 7 November 2019.

168. The Expert Group highlighted the importance of the implementation by Member States and international intergovernmental organizations of the Guidelines for the Long-term Sustainability of Outer Space Activities, in particular guidelines B.6 and B.7, on space weather, and the related guidelines C.1–C.4, on, respectively, international cooperation, information exchange, capacity-building and awareness-raising, and recommended that Member States provide regular updates to the Committee on progress towards their implementation.

169. The Expert Group agreed to prepare and submit to the Subcommittee for consideration at its fifty-eighth session a report that contains recommendations highlighting opportunities for the efficient coordination of space weather activities undertaken at the international level towards implementation of the relevant Guidelines for the Long-term Sustainability of Outer Space Activities. The report was expected to map the international space weather actors and their mandates and linkages, identify gaps and recommend actions to be taken by States members of the Committee and other relevant space weather actors to improve coordination.

170. The Subcommittee took note of the report on the work of the Expert Group, which had brought relevant entities together. In that regard, the Subcommittee recommended that the Expert Group continue its work, in accordance with the recommendations contained in the Expert Group's progress report (A/AC.105/C.1/2020/CRP.13).

IX. Near-Earth objects

171. In accordance with General Assembly resolution 74/82, the Scientific and Technical Subcommittee considered agenda item 12, entitled “Near-Earth objects”.

172. The representatives of Canada, China, Japan, Mexico, the Republic of Korea, the Russian Federation and the United States made statements under agenda item 12. Statements were also made by the observers for IAWN and SMPAG. During the general exchange of views, statements relating to the item were made by representatives of other member States.

173. The following presentations were made under item 12:

(a) “Physical parameters of near-Earth objects from radar observations”, by the representative of the Russian Federation;

(b) “International cooperation in the field of observation of near-Earth objects within the International Scientific Optical Network (ISON) project”, by the representatives of the Russian Federation;

(c) “The first interstellar comet 2I/Borisov: a new touch in the near-Earth object problem”, by the representative of the Russian Federation.

174. The Subcommittee heard status reports by IAWN and SMPAG and noted with appreciation the efforts being made by IAWN and SMPAG to share information with regard to discovering, monitoring and physically characterizing potentially hazardous near-Earth objects in order to ensure that all nations, in particular developing countries with limited capacity to predict and mitigate an impact of a near-Earth object, were aware of potential threats.

175. The Subcommittee noted that approximately 27.8 million observations of asteroids and comets had been collected in 2019 by the worldwide network of astronomical observatories, based in 40 countries. It also noted that the number of known near-Earth objects had exceeded 22,212 as at 5 February 2020, of which a record 2,433 had been discovered in 2019, with more than 2,000 asteroids now catalogued whose orbits have brought them within 8 million kilometres of Earth’s orbit.

176. The Subcommittee noted that there were currently 25 signatories to the IAWN Statement of Intent from all over the world; those signatories had a variety of ground-based and space-based telescopic assets for discovering and observing near-Earth objects, as well as capabilities in orbit computation, the prediction of potential impacts and the modelling of the effects of potential impacts. IAWN is coordinated by the Planetary Defense Coordination Office of NASA.

177. The Subcommittee noted that, on 24 July 2019, the asteroid designated as “2019 OK” by the Minor Planet Center, estimated to be approximately 100 metres in diameter, passed at a distance of 72,000 km from the surface of Earth only 12 hours after its discovery by an IAWN member, the Southern Observatory for Near-Earth Asteroid Research in Brazil, making the closest known approach of an object of its size in the last 100 years.

178. In that connection, the Subcommittee noted the need for IAWN signatories to continue to improve their capabilities for the discovery, characterization and notification of the potential hazard to the Earth posed by asteroids and comets and to enable actions that could be taken to prevent or minimize the devastating effects of an asteroid impact. It was noted that, should there be a credible threat of impact by a near-Earth object, the best information available would be provided by IAWN and disseminated to Member States through the Office for Outer Space Affairs.

179. The Subcommittee noted that, on 30 August 2019, IAWN member and member of the Lomonosov Moscow State University Gennady Borisov of the Russian Federation, using his independently operated MARGO Observatory, discovered a comet, designated as 2I/Borisov, that originated from outside the solar system,

making it the second interstellar object to be identified since the discovery of the object ‘Oumuamua in 2017.

180. The Subcommittee noted that SMPAG had continued its work under the workplan that encompasses the collective efforts of SMPAG members to prepare to meet the threat to our planet posed by hazardous near-Earth Objects through the definition and implementation of appropriate mitigation strategies. It also noted that the workplan was a living document and was available on the dedicated SMPAG web pages of the ESA website.

181. The Subcommittee further noted that SMPAG currently had 19 members and 6 permanent observers, with the ESA serving as the Chair of SMPAG and the Office for Outer Space Affairs serving as the secretariat of the Group. It further noted that, at its 14th meeting, held in conjunction with the fifty-seventh session of the Subcommittee, ESA had been re-elected by the Group as the Chair for the period 2020–2022.

182. The Subcommittee noted that SMPAG had exchanged information on the ongoing and planned activities of its members working in collaboration at the international level, including the sample return missions Hayabusa-2 of JAXA and OSIRIS-REx of NASA, which was an international mission involving the participation of Canada, France and Japan; the Double Asteroid Redirection Test (DART) mission of NASA, intended to test the kinetic impactor deflection technique; and a follow-up Hera mission of ESA to provide a post-impact assessment of a deflection test; as well the missions Comet Interceptor, to a comet, and Destiny+, to the asteroid Phaethon. The Subcommittee noted that SMPAG had encouraged the conducting of other missions to test methods of deflecting hazardous-objects, as well as a demonstration of a rapidly deployable flyby or rendezvous mission to collect critical information on a potentially hazardous asteroid or comet.

183. The Subcommittee noted that the SMPAG Ad Hoc Working Group on Legal Issues, established by SMPAG in 2016, had presented to SMPAG, at its 14th meeting, a report containing an initial analysis and assessment of the current legal context, as well as of relevant legal questions and issues regarding planetary defence. The Working Group would continue providing advice to SMPAG on matters pertaining to its work.

184. The Subcommittee noted that the sixth International Planetary Defence Conference, hosted by NASA, had been held in College Park, Maryland, United States, from 29 April to 3 May 2019 and had brought together experts from around the world with expertise in measures to detect, track, characterize and develop methods to prevent or mitigate the naturally occurring threat posed by the potential impact of an asteroid or comet on Earth.

185. The Subcommittee noted that the seventh International Planetary Defence Conference would be held at the Vienna International Centre in Vienna from 26 to 30 April 2021 and would be hosted by the Office for Outer Space Affairs.

186. The Subcommittee also noted that the next meetings of the IAWN steering committee and the fifteenth SMPAG meeting would be held in late September 2020 in the Boston area, United States.

X. Long-term sustainability of outer space activities

187. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 13, entitled “Long-term sustainability of outer space activities”.

188. The representatives of Australia, Austria, Belgium, Brazil, Canada, China, Colombia, Costa Rica, Germany, India, Indonesia, Iran (Islamic Republic of), Israel, Japan, France, Mexico, New Zealand, Pakistan, the Russian Federation, South Africa, Switzerland, the United Kingdom and the United States made statements under

agenda item 13. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

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

(a) “ISU team project ‘Sustainable Moon’”, by the observer for ISU;

(b) “Advancing planet Earth’s resource resiliency through synthetic aperture radar (SAR) analytics”, by the representative of Israel;

(c) “The impact of mega-constellations of communications satellites on astronomy”, by the observer for IAU;

(d) “Managing the plume effect to protect lunar missions of the past, present and future”, by the observer for For All Moonkind;

(e) “IAASS position on space debris management”, by the observer for IAASS;

(f) “United Arab Emirates capacity-building and international collaborations via space projects”, by the representative of the United Arab Emirates.

190. The Subcommittee had before it the following:

(a) Conference room paper entitled “Proposal by Switzerland: concerning the newly established working group on the long-term sustainability of outer space activities” (A/AC.105/C.1/2020/CRP.4);

(b) Conference room paper entitled “Proposal by Canada, Japan and the United States of America for the establishment of a working group under the agenda item on the long-term sustainability of outer space activities of the Scientific and Technical Subcommittee” (A/AC.105/C.1/2020/CRP.5);

(c) Conference room paper entitled “Proposal by the United Arab Emirates” (A/AC.105/C.1/2020/CRP.6);

(d) Conference room paper entitled “Proposal by Japan: concerning the bureau of the new working group on the long-term sustainability of outer space activities” (A/AC.105/C.1/2020/CRP.7);

(e) Conference room paper entitled “Proposal by India” (A/AC.105/C.1/2020/CRP.8);

(f) Conference room paper entitled “Proposal submitted by the Delegation of the People’s Republic of China on the Terms of Reference, Methods of Work and Workplan of the Newly Established Working Group on the Long-term Sustainability of Outer Space Activities (LTSWG 2.0)” (A/AC.105/C.1/2020/CRP.9);

(g) Conference room paper entitled “Proposal by the United Arab Emirates” (A/AC.105/C.1/2020/CRP.10);

(h) Conference room paper submitted by the United Arab Emirates entitled “Proposal on a Voluntary Implementation Reporting Survey for the Guidelines related to Long-term Sustainability of Outer Space Activities” (A/AC.105/C.1/2020/CRP.12);

(i) Conference room paper entitled “Voluntary Implementation of the Guidelines for the Long-term Sustainability of Outer Space Activities and Proposed Reporting Approach by the United Kingdom” (A/AC.105/C.1/2020/CRP.15).

191. The Subcommittee recalled the adoption by the Committee at its sixty-second session of the Guidelines for the Long-term Sustainability of Outer Space Activities (A/74/20, annex II), as well as the decision taken by the Committee at the same session to establish, under a five-year workplan, a working group under the agenda item on the long-term sustainability of outer space activities of the Scientific and Technical Subcommittee.

192. The Subcommittee also recalled that the Committee had agreed that the bureau of the working group under the agenda item on the long-term sustainability of outer space activities would be elected at the beginning of the fifty-seventh session of the Subcommittee on the basis of nominations to be submitted to and circulated by the Secretariat during the intersessional period, and that the Committee had also agreed that the bureau would lead the work of the working group at the fifty-seventh session with a view towards the development, at the fifty-seventh session, of the working group's: (a) terms of reference; (b) methods of work, including ways of incorporating input from non-governmental organizations, industry and the private sector through States members of the Committee; and (c) workplan.

193. The Subcommittee noted with appreciation the nominations for the bureau that had been submitted intersessionally by India, Japan, Switzerland and the United Arab Emirates.

194. The Subcommittee also noted that extensive informal consultations with interested delegations on the election of the bureau had been held on the margins of the fifty-seventh session. In that connection, the Subcommittee noted with appreciation the efforts of the delegation of South Africa in chairing the informal consultations.

195. The Subcommittee noted that it had not been able to elect the bureau of the working group under the agenda item on the long-term sustainability of outer space activities at its fifty-seventh session, that the working group had therefore not convened meetings at the session, and that the terms of reference, methods of work and workplan had not been developed.

196. The Subcommittee also noted that informal consultations would continue on the margins of the sixty-third session of the Committee, with the aim of electing the bureau. The Subcommittee recommended that the Committee also consider the matter further at its sixty-third session.

197. The Subcommittee was informed that the delegation of South Africa had expressed its willingness to facilitate informal consultations on the margins of the sixty-third session of the Committee, pending final confirmation from Government representatives in the capital.

198. The view was expressed that the consensus reached on the set of technical, best-practice Guidelines for the Long-term Sustainability of Outer Space Activities demonstrated the ability of all States members of the Committee to work together to preserve space for the benefit of humankind, and that the work leading to that achievement had been an excellent and necessary exercise in space diplomacy that had contributed to building transparency and confidence among States members of the Committee.

199. The view was expressed that the 21 adopted Guidelines represented best practices for the safe and responsible use of space and that their adoption marked an important milestone in ensuring that all nations can continue to benefit from the use of space over the long term.

200. The view was expressed that the preamble and 21 Guidelines adopted by the Committee in 2019 were important, but constituted only a first step in ensuring safe and sustainable conditions for the use of outer space for peaceful purposes, and that the exchange of national experiences in implementing the Guidelines would be useful, including in identifying areas that required further work and that could be addressed by updating the relevant guidelines. The delegation expressing this view was also of the view that, despite their adoption, the preamble and the 21 Guidelines did not address all relevant risks to the long-term sustainability of outer space activities.

201. Some delegations expressed the view that, in its work, the working group under the agenda item on the long-term sustainability of outer space activities should give equal priority to all topics reflected in the decision on the long-term sustainability of outer space activities taken by the Committee at its sixty-second session.

202. Some delegations expressed the view that there was a need to continue analytical work and to develop new guidelines for the long-term sustainability of outer space activities, and that a good basis for such work already existed in the texts on which the previous Working Group on the Long-term Sustainability of Outer Space Activities was not able to reach consensus.

203. Some delegations expressed the view that, following years of hard work undertaken in developing the Guidelines for the Long-term Sustainability of Outer Space Activities, States should now focus their efforts on the implementation of the Guidelines.

204. Some delegations expressed the view that the Committee should serve as the principal forum for continued institutional dialogue on issues related to the implementation and review of the 21 adopted Guidelines.

205. Some delegations expressed the view that it was important that the work on the long-term sustainability of outer space activities was coordinated and managed so as to ensure the incorporation of views and technical expertise from industry and the private sector.

206. The view was expressed that, owing in particular to their non-binding nature, the 21 adopted Guidelines, and their voluntary implementation at the national level, needed to be considered by States on a coordinated basis so as to avoid fragmentation in the governance of outer space activities.

207. The Subcommittee was informed of a number of measures that had been or were being undertaken to implement the Guidelines for the Long-term Sustainability of Outer Space Activities. Those measures, which intrinsically contribute to the increase of awareness raising and capacity-building, included, inter alia, the review and updating of relevant domestic legislation, the registration of space objects, pre-launch notifications, the development of standards for on-orbit servicing and rendezvous and proximity operations, the implementation of national space policy directives, the announcement of payload permitting principles, private sector efforts to develop and maintain a set of best practices for spaceflight safety, and the development and utilization of “green propellants” to support sustainable exploration.

208. The Subcommittee was also informed of various initiatives linked with the implementation of the Guidelines, such as the establishment of the Network for Space Object Tracking and Analysis (NETRA), a system for space object tracking and analysis to enhance space debris observation capacity; a new initiative of the Asia-Pacific Regional Space Agency Forum aimed at enhancing the understanding of space law and increasing the capacity to draft and revise national space legislation and national space policy; the launch of the Office for Outer Space Affairs project entitled “Space law for new space actors: fostering responsible national space activities” and the UNispace Nanosatellite Assembly and Training capacity-building programme of the Indian Space Research Organization (UNNATI).

209. The Subcommittee noted the lunchtime side event held on the margins of the fifty-seventh session on the theme “Opportunities and challenges for international cooperation in the implementation of the long-term sustainability (LTS) Guidelines”, which had been organized by SWF. The panel discussion held during the side event had addressed varied experiences in the authorization, supervision and conduct of space activities.

210. The view was expressed that there was a need to explore tools and instruments that take into account the particular needs of developing countries in implementing the Guidelines for the Long-term Sustainability of Outer Space Activities, as well as a need to build capacity in that regard. The delegation expressing this view was also of the view that related long-term sustainability processes should take into account the needs of small delegations and incorporate the points of view of States that were just beginning to undertake space activities.

211. The view was expressed that the Guidelines for the Long-term Sustainability of Outer Space Activities should not become an instrument for countries that have traditionally developed and used space technology to impose restrictions on other States that aspire to develop and use space technology.

212. The view was expressed that the Guidelines should focus on creating an operationally stable and safe environment that is maintained for peaceful purposes and open to international cooperation by current and future generations, in the interest of all countries, irrespective of their degree of economic or scientific development, without discrimination of any kind and with due regard for the principle of equity.

213. The view was expressed that there was a need to address the negative environmental impacts space activities can have, that States needed to work together to keep outer space free from debris and that an artificial divide between the Earth environment and the outer space environment should not be created, as both needed to be protected.

214. The view was expressed that, in order for future generations to benefit from space activities, the outer space environment needed to be maintained for peaceful purposes, and that the placement of weapons of any kind in outer space should not be permitted.

215. The view was expressed that there was an urgent need to prevent outer space from emerging as a new arena for conflict and an arms race, threatening regional and international peace and security, as well as the long-term sustainability of outer space activities. The delegation expressing that view also encouraged responsible spacefaring nations to commit themselves to not being the first to place weapons in outer space.

216. The view was expressed that, as the only standing body of the United Nations concerned exclusively with the peaceful uses of outer space, the Committee had been extremely successful in fostering international cooperation towards that end and that, for six decades, the Committee had focused on building consensus to advance the peaceful exploration and use of outer space for the benefit of all humanity.

XI. Future role and method of work of the Committee

217. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 14, entitled “Future role and method of work of the Committee”.

218. The representatives of Belgium, Brazil, Costa Rica, Indonesia, the Russian Federation and Switzerland made statements under agenda item 14. During the general exchange of views, statements relating to the item were made by representatives of other member States.

219. The Subcommittee had before it the note by the Secretariat on the governance and method of work of the Committee on the Peaceful Uses of Outer Space and its subsidiary bodies (A/AC.105/C.1/L.384).

220. The Subcommittee recalled that, at its sixty-second session, the Committee had decided to introduce a regular item entitled “Future role and method of work of the Committee” in the agendas of both subcommittees to allow for discussion of cross-cutting issues (A/74/20, para. 321 (h)).

221. The Subcommittee welcomed document A/AC.105/C.1/L.384 as an important basis for further consideration under the multi-year workplan on the governance and method of work of the Committee and its subsidiary bodies (A/73/20, para. 382). The Subcommittee noted that proposals made by delegations for future measures were presented in the note by the Secretariat in order to assist the Committee and its subcommittees in their considerations.

222. The Subcommittee also noted that discussions on organizational matters and the method of work had also been held during its fifty-seventh session in the Working Group of the Whole and that a number of recommendations had been made by the Working Group on overall time management.

223. In addition to the measures recommended by the Working Group of the Whole, the Subcommittee noted that the Committee and both subcommittees needed to further consider the overall governance and method of work under the corresponding multi-year workplan referred to in paragraph 210 above.

224. The Subcommittee welcomed the additional measures already introduced by the Secretariat for the fifty-seventh session, including the provision of administrative information on the session web page on the website of the Office for Outer Space Affairs to assist delegations in their pre-session preparations, the listing of working group meetings in the indicative schedule of work of the annotated provisional agenda for the fifty-seventh session and the possibility to upload in-session statements on the session web page on a voluntary basis.

225. The view was expressed that further consideration should be given to the possibility of instituting the exchange of views on appropriate matters on the agendas of the Committee and its subcommittees by electronic means during the intersessional period in order to stimulate informal consultations for the benefit of overall in-session considerations and preparations for the sessions by delegations.

226. Some delegations expressed the view that, with regard to proposals to replace the consensus approach with voting procedures, the consensus rule of the Committee should be maintained, because, even if voting could be a solution to decide on procedural matters, there would always be a complex grey area in distinguishing substantive matters from procedural ones.

227. The view was expressed that, in the overall consideration of the future role and method of work of the Committee, it was important to maintain the profile and significance of the Committee to ensure that it and its subcommittees, supported by the Office for Outer Space Affairs, remained unique platforms for international cooperation in the peaceful uses of outer space. The delegation expressing that view was also of the view that it was important that other intergovernmental forums within the United Nations system did not duplicate the mandate of the Committee.

228. The Working Group of the Whole was reconvened, under the chairmanship of P. Kunhikrishnan (India), in accordance with paragraph 10 of General Assembly resolution 74/82. At its 931st meeting, on 13 February, the Subcommittee endorsed the report of the Working Group of the Whole, which is contained in annex I to the present report.

XII. Use of nuclear power sources in outer space

229. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 15, entitled “Use of nuclear power sources in outer space”.

230. The representatives of China, the Russian Federation and the United States made statements under agenda item 15. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

231. The Subcommittee welcomed the fact that some States and an international intergovernmental organization were developing, or considering developing, legal and regulatory instruments on the safe use of nuclear power sources in outer space, taking into account the content and requirements of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space and of the Safety Framework for Nuclear Power Source Applications in Outer Space.

232. The view was expressed that the Principles and the Safety Framework provided a comprehensive foundation for supporting the safe use of nuclear power sources in outer space, and that the guidance provided in the Safety Framework enabled new

approaches to safety based on continuing advances in knowledge and practice since the adoption of the Principles. Furthermore, the Safety Framework allowed for States and international intergovernmental organizations to devise new approaches based on the expansion of knowledge and best practices gained from experience, and therefore continuously improve safety. The delegation expressing that view was also of the view that, to date, the Working Group on the Use of Nuclear Power Sources in Outer Space had not identified any challenges to implementing the Safety Framework that would require any modifications or additions to the Safety Framework. Thus, the practical application of the Safety Framework satisfied the safety intent of the Principles and therefore provided sufficient guidance to States and international intergovernmental organizations seeking to ensure the safe development and use of nuclear power in space.

233. The view was expressed that, since 1961, nuclear power source applications had been playing a critical role in the exploration of space, enabling missions of scientific discovery to destinations across the solar system, and that their use would be continued on some future space missions.

234. The view was expressed that nuclear power could ensure the effectiveness of space programmes in both near-Earth and deep space and that it was a matter of priority to ensure the nuclear and radiological safety of nuclear power sources in outer space during the entire cycle of their development and use. In that connection, relevant documents developed under the auspices of the United Nations assisted greatly in the drafting and implementation at the national level of norms relating to the safety of nuclear power sources in outer space.

235. The view was expressed that the Principles, as well as the recommendations contained in the Safety Framework, had proved to be sufficient sources of guidance for Member States and international intergovernmental organizations in providing for the safe use of nuclear power sources in outer space.

236. In accordance with paragraph 10 of General Assembly resolution 74/82, the Subcommittee, at its 915th meeting, on 3 February, reconvened its Working Group on the Use of Nuclear Power Sources in Outer Space, with Sam A. Harbison (United Kingdom) as Chair.

237. The Working Group on the Use of Nuclear Power Sources in Outer Space held four meetings. At its 931st meeting, on 13 February, the Subcommittee endorsed the report of the Working Group, which is contained in annex II to the present report.

XIII. Space and global health

238. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 16, entitled “Space and global health”.

239. The representatives of China, India, Indonesia, Japan, Mexico, Peru, the Russian Federation, Switzerland and the United States made statements under agenda item 16. During the general exchange of views, statements relating to the item were also made by representatives of other member States.

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

(a) “Japan’s activities for global health”, by the representative of Japan;

(b) “Knowledge transfer from space medicine to global health on Earth”, by the representative of Brazil;

(c) “SGAC space medicine and life science project group; views and activities”, by the observer for SGAC;

(d) “Geospatial applications in health crisis management: a knowledge translation experience and road map”, by the representative of Australia.

241. The Subcommittee had before it responses to the set of questions regarding policies, experiences and practices in the use of space science and technology for global health (see A/AC.105/C.1/117, A/AC.105/C.1/117/Add.1 and A/AC.105/C.1/117/Add.2).

242. Pursuant to paragraph 10 of General Assembly resolution 74/82, the Subcommittee, at its 915th meeting, on 3 February, convened its Working Group on Space and Global Health, with Antoine Geissbühler (Switzerland) as Chair.

243. The Subcommittee noted a broad array of activities undertaken by member States in areas relevant to space and global health, such as telemedicine, tele-consultation, space life sciences, space technologies, tele-epidemiology and disaster management (including responding to epidemics), and through space-based research, including at the International Space Station.

244. The Subcommittee acknowledged the contribution of space science, space technology and space applications to the prevention and control of diseases, the promotion of human health and welfare, the addressing of global health issues, the advancement of medical research, the advancement of health practices and the provision of health-care services to individuals and communities, including in rural areas with limited access to health care.

245. The Subcommittee noted that there was a need for enhanced inter-institutional and interdisciplinary cooperation and coordination among all stakeholders, such as States, United Nations entities, relevant intergovernmental and non-governmental organizations and the medical and space communities, for the attainment of the health-related goals of the 2030 Agenda for Sustainable Development.

246. The view was expressed that one of the major issues of concern to public health officials was the effect of air pollution and that geostationary meteorological satellites used for weather forecasting could play an important role in better understanding emissions, trends and impacts in relation to air pollutants and the ozone.

247. At its 931st meeting, on 13 February, the Subcommittee endorsed the report of the Working Group on Space and Global Health, which is contained in annex III to the present report.

XIV. Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union

248. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 17, entitled “Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union”, as a single issue/item for discussion.

249. The representatives of Ecuador, India, Indonesia, the Netherlands and the Russian Federation made statements under agenda item 17. The observer for ITU also made a statement. During the general exchange of views, statements relating to the item were made by representatives of other member States.

250. In accordance with the invitation extended by the Subcommittee at its fifty-sixth session, in 2019 (A/AC.105/1202, para. 287), the observer for ITU presented a report concerning the contribution of ITU to the peaceful uses of outer

space, including the use of the geostationary satellite orbit and other orbits. In that connection, the Subcommittee took note with appreciation of the information provided in the annual report for 2019 of the Radiocommunication Bureau of ITU on the use of the geostationary satellite orbit and other orbits (see www.itu.int/en/ITU-R/space/snl/Pages/reportSTS.aspx), as well as other documents referred to in conference room paper A/AC.105/C.1/2020/CRP.14. The Subcommittee invited ITU to continue to submit reports to it.

251. Some delegations expressed the view that the geostationary orbit, as a limited natural resource clearly in danger of saturation, must be used rationally, efficiently, economically and equitably. That principle was deemed fundamental to safeguarding the interests of developing countries and countries with a certain geographical position, as set out in article 44, paragraph 196.2, of the Constitution of ITU, as amended by the Plenipotentiary Conference held in Minneapolis, United States, in 1998.

252. Some delegations expressed the view that the geostationary orbit was an integral part of outer space and possessed strategic and economic value for States, and that it should be used in a rational, balanced, efficient and equitable manner, so as to ensure that it would not be saturated. The delegations expressing that view were also of the view that, in order to defend the interests of developing countries, and equatorial countries in particular, the geostationary orbit should be regulated under a special legal framework or sui generis regime, in line with article 44 of the ITU Constitution.

253. Some delegations expressed the view that the geostationary orbit must be governed by a special legal framework with the purpose of defending the interests of developing countries, in particular equatorial countries.

254. The view was expressed that it had become difficult for new space actors to obtain proper orbit and frequency rights for locations in the geostationary orbit, owing to the high saturation of that orbit. The delegation expressing that view was also of the view that the use of the geostationary orbit was not the only way to obtain access to space; such access could also be gained by obtaining international orbit and frequency rights from ITU to operate in low Earth orbit, or any other orbit, where significantly fewer activities involving the development and operation of spacecraft took place, in comparison with the geostationary orbit. Therefore, the Subcommittee should, at future meetings, broaden the scope of the current agenda item to include the low Earth orbit and other orbits.

255. The view was expressed that, while future mega-constellations of satellites could bring about new approaches to the establishment of nationwide telecommunication networks, for some countries, geostationary satellites would continue to be irreplaceable, owing to the special geographic conditions in which they operated. In that connection, the delegations expressing that view noted with appreciation that the Guidelines on the Long-term Sustainability of Outer Space Activities contributed to the protection of the geostationary orbit region, although additional efforts would be required for its preservation.

256. The view was expressed that the decisions relating to the geostationary orbit taken at the World Radiocommunication Conference 2019 (WRC-19), held in Sharm el-Sheikh, Egypt, from 28 October to 22 November 2019, would contribute to the realization of the key principle, namely, equitable access to the orbital and frequency resources of the geostationary orbit for all interested members of ITU, as well as allow the efficient use of those resources, taking into particular account the needs and interests of developing countries.

257. Some delegations expressed the view that, in order to ensure the sustainability of the geostationary orbit, as well as to ensure guaranteed and equitable access to the geostationary orbit based on the needs of all nations, taking into particular account the needs and interests of developing countries, it was necessary to keep the issue on the agenda of the Subcommittee.

XV. Draft provisional agenda for the fifty-eighth session of the Scientific and Technical Subcommittee

258. In accordance with General Assembly resolution 74/82, the Subcommittee considered agenda item 18, entitled “Draft provisional agenda for the fifty-eighth session of the Scientific and Technical Subcommittee”.

259. The Subcommittee noted that the Secretariat had scheduled its fifty-eighth session to be held from 1 to 12 February 2021.

260. The Subcommittee agreed that the following items be proposed to the Committee for inclusion in the agenda of the Subcommittee at its fifty-eighth session:

1. Adoption of the agenda.
2. Statement by the Chair.
3. General exchange of views and introduction of reports submitted on national activities.
4. United Nations Programme on Space Applications.
5. Space technology for sustainable socioeconomic development.
6. Matters relating to remote sensing of the Earth by satellite, including applications for developing countries and monitoring of the Earth’s environment.
7. Space debris.
8. Space-system-based disaster management support.
9. Recent developments in global navigation satellite systems.
10. Space weather.
11. Near-Earth objects.
12. Long-term sustainability of outer space activities.
13. Future role and method of work of the Committee.
14. Use of nuclear power sources in outer space.

    (Work for 2021 as reflected in the multi-year workplan of the Working Group (A/AC.105/1138, annex II, para. 9))
15. Space and global health.

    (Work for 2021 as reflected in the multi-year workplan of the Working Group (A/AC.105/1202, annex III, para. 5, and appendix I))
16. Examination of the physical nature and technical attributes of the geostationary orbit and its utilization and applications, including in the field of space communications, as well as other questions relating to developments in space communications, taking particular account of the needs and interests of developing countries, without prejudice to the role of the International Telecommunication Union.

    (Single issue/item for discussion)
17. Draft provisional agenda for the fifty-ninth session of the Scientific and Technical Subcommittee.
18. Report to the Committee on the Peaceful Uses of Outer Space.

Annex I

Report of the Working Group of the Whole

1. In accordance with paragraph 10 of General Assembly resolution 74/82, the Scientific and Technical Subcommittee, at its fifty-seventh session, reconvened its Working Group of the Whole.

2. From 7 to 13 February 2020, the Working Group held three meetings, with P. Kunhikrishnan (India) as Chair. The Working Group considered the following items:

(a) Space technology for sustainable socioeconomic development;

(b) Future role and method of work of the Committee;

(c) Draft provisional agenda for the fifty-eighth session of the Scientific and Technical Subcommittee.

3. The Working Group had before it the note by the Secretariat entitled "Governance and method of work of the Committee on the Peaceful Uses of Outer Space and its subsidiary bodies" (A/AC.105/C.1/L.384).

4. The Working Group recalled that, at its sixty-first session, in 2018, the Committee on the Peaceful Uses of Outer Space had agreed to the multi-year workplan on the governance and method of work of the Committee and its subsidiary bodies.

5. The Working Group noted that, in accordance with the multi-year workplan, consideration of the note by the Secretariat on the governance and method of work of the Committee and its subsidiary bodies (A/AC.105/C.1/L.384) would continue at the sessions of the Legal Subcommittee and the Committee to be held in 2020, under the respective agenda items on the future role and method of work of the Committee.

6. The Working Group discussed the large number of requests for scientific and technical presentations to be made during the sessions of the Subcommittee. The Working Group acknowledged the value of such presentations, while noting the need to better balance the consideration of agenda items in plenary, the delivery of presentations and the work of working groups undertaken with the benefit of interpretation services.

7. The Working Group therefore agreed on the following measures:

(a) Working Group meetings are to be held before the delivery of presentations at each meeting of the Subcommittee;

(b) When delegations request the scheduling of presentations, they are to indicate which of their presentations they wish to be given priority consideration, given that there may not be enough time at a session to accommodate all requests;

(c) Presentations by national delegations are to be made before presentations by permanent observers;

(d) A maximum of three presentations per meeting are to be scheduled, as previously agreed by the Subcommittee at its fifty-second session, in 2015 (see A/AC.105/1088, para. 275 (c));

(e) The length of each presentation is to be limited to 12 minutes.

8. The Working Group noted other measures proposed by delegations, such as limiting the number of presentations per delegation, scheduling presentations only in the latter part of afternoon meetings and establishing a time-bound period prior to each session within which requests for presentations should be communicated to the Secretariat. The Working Group agreed that such proposed measures, among others, should be further discussed under the multi-year workplan referred to in paragraphs 4 and 5 above.

9. The Working Group noted the possible benefit of setting a deadline for the Secretariat to receive requests by non-members of the Committee to attend sessions as observers and recommended that the Secretariat set a deadline of one week prior to the opening of sessions. The Working Group noted that the Secretariat would inform non-members of the Committee of that deadline at the regular briefings for permanent missions held prior to each session of the Committee and its subcommittees.

10. The Working Group noted that the Secretariat would continue to consult with the Conference Management Service of the United Nations Office at Vienna on possible measures to be instituted to enhance the administration and logistical arrangements of the sessions of the Committee and its subcommittees and, in that connection, would explore practices used by the secretariats of other intergovernmental bodies in Vienna.

11. The Working Group noted that, in accordance with General Assembly resolution 74/82, the Scientific and Technical Subcommittee would submit to the Committee its proposal for the draft provisional agenda for the fifty-eighth session of the Subcommittee, to be held in 2021.

12. The Working Group considered the list of substantive items contained in the provisional agenda for the fifty-seventh session of the Subcommittee (A/AC.105/C.1/L.383) and recommended that the same substantive items should be considered at the fifty-eighth session of the Subcommittee.

13. The Working Group noted that, in accordance with the agreement reached by the Subcommittee at its forty-fourth session, in 2007 (A/AC.105/890, annex I, para. 24), the International Astronautical Federation (IAF) would organize a symposium to be held at the fifty-eighth session of the Subcommittee. The Working Group also noted that IAF would present to the Committee, at its sixty-third session, in 2020, a proposed topic for the symposium.

14. At its 3rd meeting, on 13 February, the Working Group adopted the present report.

Annex II

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

1. In accordance with paragraph 10 of General Assembly resolution 74/82, the Scientific and Technical Subcommittee, at its 915th meeting, on 3 February 2020, reconvened its Working Group on the Use of Nuclear Power Sources in Outer Space, with Sam A. Harbison (United Kingdom of Great Britain and Northern Ireland) as Chair.

2. The Working Group recalled the following objectives of its multi-year workplan for the period 2017–2021, adopted by the Subcommittee at its fifty-fourth session, in 2017 (A/AC.105/1138, annex II, paras. 8 and 9):

> Objective 1. Promote and facilitate the implementation of the Safety Framework for Nuclear Power Source Applications in Outer Space by:
>
> (a) Providing an opportunity for member States and international intergovernmental organizations considering or initiating involvement in space nuclear power source (NPS) applications to summarize and discuss their plans, progress to date and any challenges faced or foreseen in implementing the Safety Framework;
>
> (b) Providing an opportunity for member States and international intergovernmental organizations with experience in space NPS applications to make presentations on challenges identified under subparagraph (a) above, and on their mission-specific experiences in implementing the guidance contained in the Safety Framework.
>
> Objective 2. Discuss within the Working Group advances in knowledge and practices and their potential for enhancing the technical content and scope of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space through presentations from member States and international intergovernmental organizations based on one or more of the following:
>
> (a) Their practical experience in implementing the Principles;
>
> (b) Their knowledge of advances in science and technology relating to space NPS;
>
> (c) Their knowledge of internationally accepted norms, standards and practices regarding radiation protection and nuclear safety.

3. The Working Group recalled that, in accordance with its workplan, in 2020, it had to receive technical presentations, determine whether the current workplan should be extended and, if it was not to be extended, prepare a draft report summarizing the technical presentations received and the challenges identified during the course of carrying out the workplan, and identifying potential enhancements to the technical content and scope of the Principles.

4. The Working Group agreed that the purpose of the Safety Framework was to promote the safety of space NPS and noted with satisfaction that a number of States and one international intergovernmental organization had been implementing the Safety Framework. The Working Group called upon Member States and international intergovernmental organizations to continue, or to begin, the implementation of the Safety Framework.

5. The Working Group noted that advances in knowledge and planned space activities had occurred since the adoption of the Safety Framework in 2009.

6. The Working Group had before it a working paper entitled “Preliminary analysis of how the Principles Relevant to the Use of Nuclear Power Sources in Outer Space contribute to the safety of space nuclear power source applications”

(A/AC.105/C.1/L.378), prepared by the Chair of the Working Group in collaboration with the delegations of France and the European Space Agency. The Working Group discussed the working paper and provided a number of views and recommendations. It also noted that the co-authors of the paper would revise its content in the course of 2020 on the basis of inputs from the members of the Working Group, with a view to presenting a revised version at the next session of the Subcommittee, in 2021.

7. In relation to the working paper referred to in paragraph 6 above, the Working Group:

(a) Discussed whether and how the preamble and the 11 principles of the Principles Relevant to the Use of Nuclear Power Sources in Outer Space contributed to safety during the design and development, implementation and operation and post-end of service phases of space NPS applications;

(b) Noted that some principles of the Principles had a practical impact on the safety aspects of space NPS applications;

(c) Also noted that, since the adoption of the Principles in 1992, substantial advances had taken place in knowledge and practices, as well as in internationally accepted norms and standards, relevant to the safety of NPS applications.

8. The Working Group also considered at its informal meetings:

(a) An informal paper prepared by the delegation of the United States of America on the updated and risk-informed process for launching space nuclear systems in the United States. The paper concluded that the United States policy, set in the Presidential Memorandum on Launch of Spacecraft Containing Space Nuclear Systems issued on 20 August 2019, was consistent with the spirit of the Principles and the Safety Framework, and provided the United States with an architecture for ensuring compliance with safety policies, establishing processes to satisfy fundamental safety requirements and objectives, and, ultimately, for the fulfilment of safety in the use of nuclear power in space;

(b) An informal presentation by the delegation of the United Kingdom on plans for research and development in space nuclear power technologies;

(c) An informal paper prepared by the Russian Federation on its practical application of the Principles and the Safety Framework. The paper concluded that the approach of the Russian Federation took into account the recommendations of the Safety Framework and corresponded with the principles and criteria for the safe use of NPS set forth in the Principles.

9. The Working Group was informed that the informal papers referred to in paragraph 8 above would be finalized and submitted to the Secretariat by the end of March 2020, with a view to making them available at the sixty-third session of the Committee, in June 2020.

10. In relation to the informal papers and presentation referred to in paragraph 8 above:

(a) The view was expressed that the application of the Principles, as well as the practical recommendations contained in the Safety Framework, were sufficient tools for States and international intergovernmental organizations seeking to ensure the safety of the development and use of NPS in outer space;

(b) The view was expressed that the implementation of international and national requirements suggested an opportunity for the safe use of NPS at all stages of the spacecraft life cycle, both during normal operation and in emergency situations;

(c) The view was expressed that planned research and development in space nuclear power technologies, namely fission surface power, thermal propulsion and fusion applications, were not covered by the Principles, and the Principles did not provide clarity for those technologies;

(d) The view was expressed that the safety goals and guidelines contained in the Principles were wholly reflected in the implementation guidance contained in the complementary Safety Framework and, together, those documents provided sufficient guidance and a sound foundation for the safe development and use of nuclear power in space to States and international intergovernmental organizations. Furthermore, the more general implementation of the Safety Framework continued to allow advances in knowledge and practice to further enhance space nuclear safety policy, and thus advanced the safety intent of the Principles;

(e) The view was expressed that some principles did not contribute to the safety of space NPS applications, while others might have an unintended negative impact on the safety of space NPS applications.

11. On the basis of detailed discussions and taking note of the views expressed above, the Working Group agreed that there was a range of possible options for exploring potential enhancements to the technical content and scope of the Principles, consistent with objective 2 of the workplan of the Working Group. Further work would be required to elaborate and discuss those options, with a view to presenting a consensus position in the final report to the Subcommittee, in 2021.

12. The Working Group agreed that, in order to carry out the tasks for the year 2020 under its multi-year workplan, it would be necessary to convene an intersessional meeting. In that connection, the Working Group agreed to meet from 17 to 19 June 2020, on the margins of the sixty-third session of the Committee, and requested that the Secretariat facilitate that meeting.

13. At its 4th meeting, on 13 February, the Working Group adopted the present report.

Annex III

Report of the Working Group on Space and Global Health

1. In accordance with paragraph 10 of General Assembly resolution 74/82, the Scientific and Technical Subcommittee, at its fifty-seventh session, convened its Working Group on Space and Global Health.

2. From 4 to 13 February 2020, the Working Group held three meetings, with Antoine Geissbühler (Switzerland) as Chair.

3. The Working Group had before it the note by the Secretariat entitled "Responses to the set of questions regarding policies, experiences and practices in the use of space science and technology for global health" (A/AC.105/C.1/117, A/AC.105/C.1/117/Add.1 and A/AC.105/C.1/117/Add.2).

4. The Working Group noted that, in addition to the meetings that the Working Group had held during the fifty-seventh session of the Subcommittee with the benefit of interpretation services, the Chair and interested delegations had held extensive informal consultations on the margins of the session.

5. The Working Group also noted that three presentations had been delivered in the context of the informal consultations, on the themes "Geographic information system-enabled global crisis management solution – a knowledge translation from Australia to Canada" and "Optimizing the allocation of health resources through realistic geospatial modelling" and on the wiki resource being developed by the University of Koblenz-Landau under the mandate of the Working Group.

6. The Working Group further noted that the informal consultations had enabled experts to discuss the responses received to the questions regarding policies, experiences and practices in the use of space science and technology for global health, identify possible gaps in national, regional and international capacities in using space science and technology and their applications for global health, and review mechanisms to facilitate the sharing of information, strengthen capacity-building and foster new synergies between the space and health sectors.

7. The Working Group found that the responses received so far to the questionnaire contained in document A/AC.105/1202, annex III, appendix II, provided rich and useful information that would guide the Working Group further in shaping its recommendations to the Subcommittee. In that regard, the information that had been collected should be organized, as it covered many areas, with a view to establishing a globally accessible platform to enhance the sharing of information, best practices, tools and capacity-building resources in the area of space and global health.

8. The Working Group noted that many respondents to the questionnaire had pointed to the fact that the process of responding to the set of questions had enabled constructive discussions at the national level between the space and health sectors. It was nevertheless also noted that there was a need to encourage further coordination with ministries responsible for public health in responding to the set of questions. In that regard, it would be important to receive more responses in order to gather a broad collection of information that would further support the Working Group in developing concrete recommendations under its mandate.

9. The Working Group agreed that the Office for Outer Space Affairs should send a letter to the World Health Organization to inform it of the work of the Working Group and of the importance of receiving additional responses to the questionnaire.

10. The Working Group recommended that public health and medical experts be included in delegations to the sessions of the Subcommittee in order to broaden the basis for constructive work by the Working Group.

11. The Working Group discussed contributions to the work of the Working Group on the "Space2030" Agenda of the Committee on the Peaceful Uses of Outer Space,

in accordance with its mandate, and presented to the Bureau of that Working Group a text for its consideration.

12. The Working Group agreed to prepare recommendations as to the role and structure of the globally accessible platform, whose establishment was recommended under thematic priority 5 (Strengthened space cooperation and global health) of the fiftieth anniversary of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE+50) (see A/AC.105/1172, para.74 (b)).

13. In accordance with the multi-year workplan of the Working Group (A/AC.105/1202, annex III, appendix I), the Working Group requested the Secretariat to invite further contributions to the questionnaire contained in the appendix to the present report of the Working Group.

14. The Working Group also requested the Secretariat to continue to invite States members of the Committee to provide the details of national points of contact for the Working Group.

15. At its 3rd meeting, on 13 February, the Working Group adopted the present report.

Appendix

Questions regarding policies, experiences and practices in the use of space science and technology for global health

1. Please describe existing or planned formal cooperative agreements and other institutional arrangements (memorandums of understanding, letters of agreement, frameworks of collaboration, etc.) between the health sector and other sectors directly involved in space activities at the national level.

2. Please provide recommendations regarding the establishment of a dedicated platform for effective coordination among United Nations entities, other international organizations and relevant actors on space and global health issues.

3. Please describe existing or planned policy-enabled environmental and governance mechanisms for removing barriers to the effective use of space-based technologies in support of global health.

4. Please describe existing or planned policies on open data-sharing and participatory approaches to developing and improving access to geospatial information relevant to global health.

5. Please describe existing or planned efforts related to the geotagging of all assets relevant to health systems, including health information systems.

6. Please describe existing or planned intersectoral coordination and cooperation for effective international, regional, national and subnational capacity-building activities relevant to the application of space science and technology in the field of global health.

7. Please describe existing or planned mechanisms to engage educational institutions and other capacity-building mechanisms in motivating young health professionals to acquire skills and abilities required to efficiently use advantages provided by space technology, science and applications at an early stage in their careers.

8. Please describe existing or planned mechanisms to better integrate space-derived data and information into decision-making processes related to global health, and to harmonize and share such data.

9. Please describe how space technology and applications are integrated into health-related emergency planning and management and disaster management plans.

10. Please describe key activities, reference documents and plans relevant to the topic “Space for global health”.

11. Please provide an overview of existing and planned practices and initiatives in the current uses of space (technology, applications, practices and initiatives) in support of global health and identify gaps, if any, in the following areas:

(a) Telemedicine and tele-health;

(b) Tele-epidemiology and environmental health;

(c) Space life sciences;

(d) Disaster and health emergency management;

(e) Other.

Annex IV

Summary report of the Working Group on the “Space2030” Agenda of the Committee on the Peaceful Uses of Outer Space

1. The Working Group on the “Space2030” Agenda met during the fifty-seventh session of the Scientific and Technical Subcommittee, during the plenary meetings and in informal consultations.

2. At its first meeting, the Working Group recalled its workplan (see A/AC.105/1202, annex IV, appendix), according to which the Working Group in 2020 would:

(a) Continue to consider and consolidate the draft “Space2030” agenda and implementation plan during the sessions of the Scientific and Technical Subcommittee and the Legal Subcommittee to be held in 2020. The Working Group may hold intersessional meetings, as necessary, to advance its work;

(b) Present a final, consolidated draft of the “Space2030” agenda and implementation plan to the Committee on the Peaceful Uses of Outer Space at its sixty-third session, in 2020, for its consideration and submission to the General Assembly at its seventy-fifth session, in 2020.

3. The Working Group was chaired by the members of the Bureau, comprising the Chair, Mu’ammar Kamel Haddadin (Jordan), replacing Awni Mohammad Khasawneh (Jordan), and the two Vice-Chairs, Alessandro Cortese (Italy), replacing Maria Assunta Accili Sabbatini (Italy), and Dumitru Dorin Prunariu (Romania).

4. The Working Group had before it the following documents:

(a) Working paper submitted by the Bureau of the Working Group on the “Space2030” Agenda, entitled “Draft ‘Space2030’ agenda and implementation plan” (A/AC.105/C.1/L.382);

(b) Conference room paper by the Bureau of the Working Group on the “Space2030” Agenda containing a revised draft “Space2030” agenda and implementation plan (A/AC.105/C.1/2020/CRP.16).

5. The Working Group expressed appreciation for the preparatory work done by the Bureau of the Working Group, with the assistance of the Secretariat, in advance of the fifty-seventh session of the Subcommittee, and for its work in conducting the meetings of the Working Group held at that session.

6. The Working Group noted that the text of the revised draft “Space2030” agenda and implementation plan, as contained in document A/AC.105/C.1/2020/CRP.16, would be made available in all the official languages of the United Nations in advance of the fifty-ninth session of the Legal Subcommittee, to be held from 23 March to 3 April 2020, to enable the Working Group to continue its work, with a view to submitting a final, consolidated draft of the “Space2030” agenda and implementation plan for consideration by the Committee at its sixty-third session, in 2020, and submission to the General Assembly at its seventy-fifth session, in 2020.