



General Assembly

Distr.: Limited
22 April 2021

Original: English

**Committee on the Peaceful
Uses of Outer Space
Scientific and Technical Subcommittee
Fifty-eighth session
Vienna, 19–30 April 2021**

Draft report

V. Space debris

1. In accordance with General Assembly resolution [75/92](#), the Subcommittee considered agenda item 7, entitled “Space debris”.
2. The representatives of Austria, Brazil, Canada, China, Finland, Germany, India, Indonesia, Italy, Japan, Kenya, Mexico, the Netherlands, Peru, the Russian Federation, Thailand, the United States and Venezuela (Bolivarian Republic of) made statements under agenda item 7. During the general exchange of views, statements relating to the item were also made by representatives of other member States.
3. The Subcommittee heard the following scientific and technical presentations:
 - (a) “Canadian space-based photometric measurements of the Starlink constellation”, by the representative of Canada;
 - (b) “2020 space debris activities in France: highlights”, by the representative of France;
 - (c) “The German Experimental Space Surveillance and Tracking Radar: a high-performance experimental radar for space surveillance”, by the representative of Germany;
 - (d) “SMOG-1, the fourth Hungarian PocketQube-class student satellite in low Earth orbit: radio frequency smog measurement system in low Earth orbit”, by the representative of Hungary;
 - (e) “Space debris research at JAXA”, by the representative of Japan;
 - (f) “Russian Federation space debris mitigation activities in 2020”, by the representative of the Russian Federation;
 - (g) “United States space debris environment and activity updates”, by the representative of the United States;
 - (h) “Space debris/sustainability activities of ESA in 2020”, by the observer for ESA;
 - (i) “Space traffic management and space environment sustainability in the New Space era”, by the observer for IAASS.



4. 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, contained in replies received from Member States and international organizations (see [A/AC.105/C.1/118](#), [A/AC.105/C.1/118/Add.1](#) and [A/AC.105/C.1/2021/CRP.6](#)).
5. The Subcommittee noted with satisfaction that the endorsement by the General Assembly, in its resolution [62/217](#), of the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space had proved vital in controlling the space debris problem for the safety of future space missions.
6. The Subcommittee also noted with satisfaction that many States and international intergovernmental organizations were implementing space debris mitigation measures consistent with the Space Debris Mitigation Guidelines and the Guidelines for the Long-term Sustainability of Outer Space Activities of the Committee and/or the Space Debris Mitigation Guidelines of the Inter-Agency Space Debris Coordination Committee (IADC) and that a number of States had harmonized their national space debris mitigation standards with those guidelines.
7. The Subcommittee noted that some States were using the Space Debris Mitigation Guidelines of the Committee, the European Code of Conduct for Space Debris Mitigation, ISO standard ISO 24113:2011 (Space systems: space debris mitigation requirements) and ITU recommendation ITU-R S.1003 (Environmental protection of the geostationary-satellite orbit) as reference points in their regulatory frameworks for national space activities.
8. The Subcommittee also noted that, in the area of space debris, some States were cooperating under the space surveillance and tracking support framework funded by the European Union and in the ESA space situational awareness programme.
9. The Subcommittee expressed concern at the increasing amount of space debris and encouraged States, agencies, industries and academic institutions that had not yet done so to consider voluntarily implementing the Space Debris Mitigation Guidelines and the Guidelines for the Long-term Sustainability of Outer Space Activities of the Committee.
10. The Subcommittee noted that IADC, whose initial work had served as the basis for the Space Debris Mitigation Guidelines of the Committee, had updated its own Space Debris Mitigation Guidelines in 2020 to reflect the evolving understanding of the space debris situation.
11. The Subcommittee noted with appreciation that States had undertaken a number of actions to mitigate space debris, such as improving the design of launch vehicles and spacecraft, developing special software, reorbiting 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, the extension of satellite lifespans and active space debris removal.
12. 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; measuring, characterizing, continuous monitoring and modelling of space debris; prediction, early warning and notification of space debris re-entry and collision; and space debris orbit evolution and fragmentation.
13. 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.
14. The view was expressed that it was important to improve and refine the existing space debris mitigation guidelines and to promote the development of binding international standards.

15. The view was expressed that greater compliance with space debris mitigation guidelines and further work were needed to ensure that sufficient normative frameworks for space debris remediation could be identified and developed at the international level, and that consistent reporting on the national implementation of international normative frameworks was necessary.

16. Some delegations expressed the view that international cooperation was necessary to reduce the barriers and risks relating to feasible orbital debris removal missions, and that increased international agreement on the appropriate internationally accepted framework for such missions would be essential for ensuring that they could make positive, transparent contributions to the sustainability of the space environment.

17. Some delegations expressed the view that it was necessary to strengthen international cooperation in promoting research programmes related to space debris and in building the capacities of emerging countries in the space field, specifically in relation to space debris mitigation and remediation, including, inter alia, cooperation on evaluations and orbital calculation, predictive models, tools for monitoring space debris, operational protocols, and considerations for the design of satellites.

18. Some delegations expressed the view that international cooperation was necessary for the exchange of information relating to situational awareness and the sharing of information on objects and events in space.

19. Some delegations expressed the view that it was essential for all information related to the entry of space debris into the atmosphere to be communicated with diligence and promptness to those countries that might be affected by such debris.

20. The view was expressed that a worldwide network for the laser ranging of space debris should be developed to improve orbital predictions, as it would be useful for avoidance manoeuvres, conjunction warnings and removal missions.

21. The view was expressed that it was important to strengthen international cooperation not only on observation networks, but also on data-sharing, and data-processing systems.

22. The view was expressed that there was a need to address the entire range of issues related to space debris, including legal, economic, technological and political aspects, within the framework of the Committee and on the basis of consensus.

23. The Subcommittee noted with satisfaction that the compendium of space debris mitigation standards adopted by States and international organizations was being continuously updated. The Subcommittee noted that the compendium, initiated by Canada, Czechia and Germany, could be consulted on the website of the Office for Outer Space Affairs, and encouraged Member States to continue to provide contributions and updates to it.

24. The Subcommittee 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.

XIII. Space and global health

25. In accordance with General Assembly resolution [75/92](#), the Subcommittee considered agenda item 15, entitled “Space and global health”.

26. The representatives of China, India, Indonesia, Israel, Japan, Mexico, Peru 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.

27. The Subcommittee heard the following scientific and technical presentations:
- (a) “Australian initiatives in digital health during the pandemic crisis and after”, by the representative of Australia;
 - (b) “Spatial information technology and disease prevention and control in China”, by the representative of China;
 - (c) “Space chemistry and global health: drug development against the coronavirus disease (COVID-19) in space”, by the representative of Hungary;
 - (d) “Space technology applications in India with relevance to COVID-19”, by the representative of India;
 - (e) “Space medicine for Earth medicine: 60 years since the first human spaceflight”, by the representative of the Russian Federation;
 - (f) “Copernicus and COVID-19: the European Union Earth Observation Programme initiatives”, by the observer for the European Union;
 - (g) “Thromboembolism in space and its implications on COVID-19 research on Earth”, by the observer for CANEUS International;
 - (h) “An evaluation of Earth observation as a potential tool to forecast and manage resources during the COVID-19 pandemic”, by the observer for SGAC;
 - (i) “The role of space during pandemics”, by the observer for ISU.
28. The Subcommittee had before it the following:
- (a) 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.1/119](#), [A/AC.105/C.1/119/Add.1](#), [A/AC.105/C.1/119/Add.2](#), [A/AC.105/C.1/119/Add.3](#) and [A/AC.105/C.1/2021/CRP.21](#));
 - (b) Conference room paper containing a note by the Secretariat entitled “Review of responses to the set of questions on the policies, experiences and practices in the use of space science and technology for global health” ([A/AC.105/C.1/2021/CRP.7](#));
 - (c) Conference room paper containing a working paper by the Chair of the Working Group on Space and Global Health entitled “Draft recommendations on the policies, experiences and practices in the use of space science and technology for global health” ([A/AC.105/C.1/2021/CRP.8](#)).
29. The Subcommittee noted a broad array of activities relevant to space and global health, such as telemedicine, space life sciences, space technologies, tele-epidemiology and disaster management (including responding to epidemics), as well as activities undertaken through space-based research, including at the International Space Station.
30. 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.
31. The Subcommittee noted with concern the extraordinary situation, with global implications, created by the COVID-19 pandemic, which has spread all around the globe in just a few months and affected, inter alia, societies and their health, the economy, tourism, sports and culture in an unprecedented way.
32. The Subcommittee noted the vital role of science, technology, research and innovation in addressing the COVID-19 pandemic, and their critical role in support of contact tracing, the identification of affected areas, modelling the spread of the

disease and monitoring its transmission, connectivity for remote working, tele-health and communication, as well as methods of coping with social isolation.

33. Pursuant to paragraph 5 of General Assembly resolution [75/92](#), the Subcommittee, at its 935th meeting, on 19 April, reconvened its Working Group on Space and Global Health, with Antoine Geissbühler (Switzerland) as Chair.

34. At its [...] meeting, on [...] April, the Subcommittee endorsed the report of the Working Group on Space and Global Health, which is contained in annex [...] to the present report.
