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Committee on the Peaceful Uses of Outer Space

Report on the United Nations/United Arab Emirates World Space Forum: “Space for our future”

(Online, 9 and 10 December 2020)

I. Introduction

1. The Office for Outer Space Affairs of the Secretariat and the United Arab Emirates Space Agency jointly organized the World Space Forum on the theme “Space for our future” as an online meeting on 9 and 10 December 2020.
2. The 2020 Forum provided an opportunity for representatives of the space community to address international cooperation in the peaceful uses of outer space across the four pillars identified in preparation for the fiftieth anniversary of the United Nations Conference on the Exploration and Peaceful Uses of Outer Space (UNISPACE+50), namely space economy, space society, space accessibility and space diplomacy, and concluded with the announcement of a World Space Forum action report.
3. Owing to the coronavirus disease (COVID-19) pandemic, the Forum was held online instead of in Dubai, United Arab Emirates.
4. The present report contains a description of the background, objectives and programme of the Forum and provides a summary of the sessions, as well as observations, recommendations and conclusions.

II. Background and objectives

5. Launched in Vienna in November 2019 (see [A/AC.105/1219](#)), the World Space Forum is a newly established event series hosted by the United Nations that is built on the recommendations generated at four high-level forums held between 2015 and 2018. That sequence of forums demonstrated the growing interest of an increasing number of actors in discussing the future of space and international cooperation across the pillars of space economy, space society, space accessibility and space diplomacy.
6. Through the World Space Forum, the United Nations aims to leverage innovative solutions and technological developments to realize the Sustainable Development Goals. Attention has increasingly been focused on the unique potential of space technologies in this endeavour. Building on the outcomes of UNISPACE+50 and taking advantage of the momentum it generated, the 2020 Forum was aimed at



ensuring that the current dialogue among stakeholders in the space field fully captures the political, legal and capacity-building elements of international cooperation in space exploration.

7. As the space community looks ahead to the future and more actors enter the space arena, international cooperation is essential for a sustainable space environment. Together with its partners, the United Nations stands ready to facilitate productive and impactful international cooperation in the peaceful uses of outer space. The Office for Outer Space Affairs is in a unique position to bring together all relevant stakeholders to ensure that the benefits of space are available to the broadest possible user base, in all countries around the world.

8. The aim of the World Space Forum held in 2020 was to step up those efforts and ensure that the benefits of space are brought to everyone, everywhere. By facilitating the exchange of best practices and more inter-agency collaboration in support of the Sustainable Development Goals, space exploration, science and technology can finally be utilized more universally as key tools for a better future.

9. As agreed at the United Nations/United Arab Emirates High-level Forum: Space as a Driver for Socioeconomic Sustainable Development (see [A/AC.105/1165](#)), held in 2017, the High-level Forum series, which was renamed the World Space Forum in 2019, continued to serve as a driver for dialogue between Governments, international organizations, industry, the private sector, academia and civil society, to connect the four pillars of UNISPACE+50 and the “Space2030” agenda.

10. The 2020 Forum was focused on the theme “Space for our future” in order to bring together all relevant stakeholders to identify new pathways in utilizing space for a better world and bring the benefits of space to the broadest possible user base, in all countries around the world.

III. Attendance

11. The Forum was held online and brought together participants from national, regional and international public and private organizations and institutions, including decision makers from government agencies, high-ranking officials from regional and international agencies, representatives and experts from United Nations bodies, experts from the space community, the academic community and international centres of excellence, policymakers, researchers involved in the use of space technologies, representatives of the private sector in the space and non-space fields, and civil society leaders.

12. A total of 1,181 individuals, 39 per cent of whom were women, registered to attend the Forum and were granted access to the web-based conference platform.

13. Several of the participants were members of the diplomatic community, including the representatives of permanent missions to the United Nations at Vienna. Representatives from space agencies at various levels were also present, including from the Algerian Space Agency, the Austrian Research Promotion Agency, the Brazilian Space Agency, the Canadian Space Agency, the Egyptian Space Agency, the European Space Agency, the Ethiopian Space Science and Technology Institute, the Mexican Space Agency, the National Centre for Space Studies of France, the German Aerospace Center, the Iranian Space Research Centre, the Italian Space Agency, the National Aeronautics and Space Administration of the United States of America, the National Institute of Aeronautics and Space of Indonesia, the National Space Research and Development Agency of Nigeria, the Netherlands Space Office, the Norwegian Space Agency, the Royal Centre for Remote Sensing of Morocco and the Swedish National Space Agency.

14. The following 84 Member States were represented at the Forum: Algeria, Argentina, Australia, Austria, Bahrain, Belarus, Belgium, Bhutan, Bolivia (Plurinational State of), Botswana, Brazil, Bulgaria, Cameroon, Canada, Chile, China, Costa Rica, Czechia, Ecuador, Egypt, El Salvador, Estonia, Finland, France,

Germany, Greece, Honduras, Hungary, India, Indonesia, Iran (Islamic Republic of), Iraq, Ireland, Italy, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Latvia, Lebanon, Luxembourg, Malaysia, Malta, Mexico, Morocco, Namibia, Netherlands, Nigeria, Norway, Oman, Pakistan, Panama, Paraguay, Philippines, Poland, Portugal, Romania, Russian Federation, Rwanda, Saudi Arabia, Singapore, Slovakia, Slovenia, South Africa, Spain, Sri Lanka, Sudan, Sweden, Switzerland, Syrian Arab Republic, Tajikistan, Thailand, Tunisia, Turkey, Uganda, Ukraine, United Arab Emirates, United Kingdom of Great Britain and Northern Ireland, United States, Uruguay, Uzbekistan, Venezuela (Bolivarian Republic of) and Zimbabwe.

IV. Programme

15. The programme of the Forum was developed jointly by the Office for Outer Space Affairs and the United Arab Emirates Space Agency.

16. The Forum began with a high-level segment, with introductory remarks by the Director of the Office for Outer Space Affairs and the Director General of the United Arab Emirates Space Agency on the importance of bringing the benefits of space to everyone, everywhere. The high-level segment was followed by two days of expert exchanges in which new initiatives to jointly address the future of space were explored.

17. The expert exchanges during both days of the Forum were focused on addressing challenges to humanity, tackling climate change and environmental degradation, creating a space economy for all and preserving space for future generations. The sessions began with short presentations by each speaker, followed by interactive discussions on the following themes: (a) space for humanity; (b) space for the planet; (c) space for economy; and (d) sustainable future in space.

18. The closing session of the 2020 Forum consisted of a summary of the most important points raised during the panel discussions and of concluding remarks focused on the launch of the World Space Forum action report, the aim of which is to compile space solutions in order to collectively address challenges to humanity and sustainable development.

19. A virtual side event on the future of space exploration was organized on the first day of the Forum, and one special event on the announcement of opportunity for the new round of KiboCUBE, the United Nations/Japan Cooperation Programme on CubeSat Deployment from the International Space Station Japanese Experiment Module (Kibo), was held on the second day.

20. Video recordings of each session and all presentations can be found on the website of the Office for Outer Space Affairs (www.unoosa.org).

V. Summary of sessions

21. The session on the theme “Space for humanity” provided insights into various important technical programmes and allowed participants to draw attention to the importance of making space benefits available to everyone in order to improve lives all around the world. Participants highlighted the value of space technology to connect the world and stressed the importance of connectivity as an enabler of development.

22. Participants underlined the role of young people as the leaders of the future and highlighted the need to involve them further in all space endeavours, as well as to empower women and girls in the space sector, as women and girls are currently underrepresented in the industry and related fields of science, technology, engineering and mathematics.

23. A panel discussion during the session on the theme “Space for the planet” covered policy, scientific and technical aspects of the use of space for the

sustainability of Earth and the space environment. Participants highlighted the need to accelerate efforts in addressing the global frameworks, including the 2030 Agenda for Sustainable Development and the Paris Agreement, with due utilization of all available assets that space offers.

24. Panellists also reflected on the need to establish means of reporting on progress at the national and international levels on a voluntary basis, as well as the need for effective communication to spread the word about progress and to motivate, encourage and engage individuals and stakeholders to take action. The importance of exchanging views, ideas and best practices was also underlined as a precondition for success.

25. Furthermore, the promotion of innovation in the space industry, as well as its relationship to and interplay with other frontier technologies, was discussed. Participants addressed the benefit of combining the power of different technologies, specifically artificial intelligence, machine learning and quantum computing, with space assets to enable novel data mining and data analytics techniques, with uses ranging from climate and ecosystem modelling, mapping of the Earth, space debris monitoring and alert signalling to the integration of human perspectives and trade-offs into decision-making.

26. During the session, the role and importance of international cooperation in the peaceful uses of outer space was also underlined, and a proposal for a cooperative network for addressing climate action was presented on the basis of the main pillars of transparency, capacity-building, knowledge-sharing and efficiency. It was stressed that a multi-stakeholder approach was the only way to address global challenges effectively.

27. During the side event on the future of space exploration, the importance of collaboration, especially with regard to new space policies, was highlighted, and the work of the Committee on the Peaceful Uses of Outer Space in that regard was commended. Participants discussed several ongoing space endeavours and stressed the need to further promote low- and medium-tier space entrepreneurs as major players in the modern space industry.

28. The side event provided participants with an opportunity to exchange ideas and views on topics ranging from the need to preserve current and future space activities and the importance of responsible behaviour in space to the need to establish support for small space companies and start-ups.

29. Given the rapid increase in the number and variety of space actors, the importance of collaboration between all stakeholders to make space sustainable for the future and to address major global challenges was underlined, especially in the light of the worrying amount of space debris that is still being generated, together with the emergence of counter-space capabilities.

30. The panellists noted that the space arena was rapidly evolving and that the assumption was often made that the global system of governance and technology could somehow keep up with the increasing pace of development. The forces shaping the evolution of the space arena included the growing number and diversity of space actors, the movement from a bipolar to a multipolar world in space, the growing influence of the private sector in space, the emergence of new types of space activities, growing orbital congestion and the proliferation of space debris, and a proliferation of counter-space capabilities, accompanied by increasing rhetoric on the inevitability of military conflict in space, which raised concerns about the stability and safety of the space domain. Those forces would combine in different ways that could lead to a “high road” towards a safe, secure and prosperous future in space, or to a “low road” of fragmented governance, discord and conflict in space. Achieving the former outcomes would require the development of a shared vision for humanity’s future in space.

31. The session on the theme “Space for economy” provided an opportunity to introduce national and international space programmes and included exchanges on

the possibilities for international collaboration, in line with Sustainable Development Goal 17, on partnerships for the Goals. It was emphasized that there was a need for support from the whole ecosystem to promote and scale up small businesses, and the benefits of such efforts were also underlined.

32. The panellists also highlighted the value of space endeavours for addressing global challenges, including the current pandemic, as satellites served as the key tools for communication, remote work, e-education and telemedicine. It was argued that the lack of access to those benefits could be bridged only by forming effective partnerships at the national and international levels.

33. The panellists agreed that international cooperation was crucial to finding a sustainable approach to space activities and making the space market self-sustainable. The rapid expansion of commercial activities had led to a gap in national rules that would enable Governments to promote small and medium-sized enterprises. Reducing such barriers for the private sector would be an incentive for the establishment of new businesses and for further innovation.

34. In the discussion on the theme “Sustainable future in space”, three layers related to space sustainability were differentiated: terrestrial space applications, in-orbit solutions (as well as the sustainability of deep space exploration) and the economic sustainability of the space sector. Emphasis was placed on the protection of Earth orbits, and the upcoming lunar missions and their connection to space sustainability (i.e., space resource management) were also discussed.

35. The panellists stressed that communication, partnerships and cooperation were of the utmost importance in dealing with space sustainability issues and underlined the need to communicate effectively to the public and decision makers that space activities and their benefits are in the interest not only of space actors, but of humanity as a whole.

36. Participants also discussed the dependence of humanity on terrestrial natural resources and how the exploration and utilization of outer space might create new opportunities to reduce that dependence. Other ways in which the democratization of space had been contributing to the achievement of the Sustainable Development Goals were also discussed, including water management and urban planning, climate change monitoring and mitigation, and humanitarian and disaster relief.

37. The importance of the role of spacefaring nations in supporting the capabilities of emerging and non-spacefaring nations through information- and data-sharing, the exchange of best practices and capacity-building was also noted.

38. It was also acknowledged that space debris mitigation was possible only if space actors abided by the Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space, combined with the adoption of appropriate national legal and policy frameworks. The need for global management of space traffic was also emphasized as an important means of addressing the issue of space debris and ensuring safety, security and sustainability throughout space operations.

39. In the light of the growing role of commercial space activities, the importance of the private sector operating with due regard for the highest standards of space sustainability was highlighted. The panellists suggested that space companies might be further incentivized to follow space sustainability norms by different means, such as corporate responsibility and insurance practices. The need to link public investments and stimuli to responsible behaviour on the part of recipient stakeholders was also noted, as was the importance of data-sharing practices between the public and private sectors and of involving academia.

40. It was also noted that discussions on space sustainability had evolved over time from a theoretical perspective to practical multi-stakeholder engagements. The panellists also drew attention to the crucial task faced by the international space community: to monitor the framework in which humanity can responsively and sustainably grow further.

41. Throughout the session, the panellists expressed the need for a balanced approach, which would require a thorough identification of the specific needs and interests of different stakeholders and cooperation among them. As space had evolved into a multi-stakeholder arena, comprehending the needs of all relevant actors would help place the space agenda on a sustainable trajectory.

42. The participants also welcomed the continuous global and multi-stakeholder dialogues through international forums, such as the World Space Forum itself, and expressed their willingness to take practical steps to engage in collaboration for space sustainability. In addition, the speakers called for the sharing of operational case studies, which were becoming important sources of good practices in the implementation of the Guidelines for the Long-term Sustainability of Outer Space Activities of the Committee on the Peaceful Uses of Outer Space.

VI. Observations

43. The observations set out below were proposed during the discussions in the four sessions, on the themes “Space for humanity”, “Space for the planet”, “Space for economy” and “Sustainable future in space”.

44. It was stressed that space actors must measure their space activities through three lenses, namely, transparency, predictability and the development of an evidence mechanism to hold actors accountable for their behaviour. Panellists agreed that while the purpose of the international legal framework was to preserve the orbital environment, it was necessary to embrace cultural differences among nations in order to harmonize various interpretations when adopting international legal instruments on space sustainability. In addition to in-orbit solutions, it was considered necessary to start focusing on the international framework for deep space missions to ensure that space exploration and the use of outer space were conducted in a responsible and sustainable manner in the coming years.

45. The importance of dialogue and close cooperation among States for developing a shared vision of humanity’s future in space was stressed. It was highlighted that the absence of such dialogue, especially at a time when many new State and non-State entities were becoming active participants in space activities, could lead to a fragmentation of space governance that would ultimately undermine the rule of law in space and slow the development of a space economy that benefited all nations. That underscored the increasing importance of the Committee on the Peaceful Uses of Outer Space as the appropriate multilateral forum for developing such a common vision for humanity’s future in space. In that regard, it was recommended that the Committee begin to consider its role in developing a shared vision for space.

46. It was also recommended to further involve young people, as the leaders of the future, in all current space endeavours and to empower women and girls in the space sector, as women and girls are currently underrepresented in all fields related to science, technology, engineering and mathematics.

VII. Conclusions

47. The United Nations/United Arab Emirates Space Agency World Space Forum on the theme “Space for our future” provided an opportunity to advance the debate on the future of space and of international cooperation with regard to the topics of addressing challenges to humanity, tackling climate change and environmental degradation, creating a space economy for all and preserving space for future generations to come.

48. The Forum demonstrated the importance of continued and proactive action to raise awareness of the existing normative structure in order to promote the consistency of global space governance, as a rule-based international order is

important for influencing national space law, which will in turn influence non-State actors.

49. Given the rapidly evolving space sector and current developments, the Forum provided an important platform to contribute to the skills, knowledge and experience of the diplomatic community that are needed to advance the international, interdisciplinary discussions associated with space diplomacy.

50. In addition, the World Space Forum provided an additional forum for the diplomatic community to engage with the broader space community, to view the international space context through a different lens and to provide cross-cutting knowledge that builds bridges for international cooperation.

51. At the Forum, the importance of space technology for human development – in spacefaring and non-spacefaring nations – was demonstrated, and this common understanding will provide the essential basis for future exchanges within the Committee on the Peaceful Uses of Outer Space and future meetings of the World Space Forum.

52. The Forum also demonstrated the increasing interest of the broader space community in contributing to the exchange of views, ideas and best practices and in collectively addressing international cooperation in the peaceful uses of outer space, in recognition of the need for a proactive solution that preserves space. Furthermore, the Forum uniquely highlighted the importance of international cooperation, as well as the broadest possible inclusion of various space actors, for jointly addressing potential future challenges in the outer space domain.

53. Building on the outcomes of the series of high-level forums and of the first World Space Forum, held in 2019, the 2020 Forum offered a unique occasion to facilitate constructive dialogue among a wide range of stakeholders and to exchange ideas and views on key initiatives, policies and projects.

54. The Forum concluded with an important announcement regarding the launch of a World Space Forum action report, the aim of which is to compile space solutions to collectively address challenges to humanity and sustainable development. The voluntary submission of activities under the action report will make it possible to account for actions on an annual basis and to inform and steer discussions in future meetings of the Forum. This unique approach will help to accelerate peer-to-peer exchange, match user needs with provider solutions, initiate cross-sectoral partnerships and facilitate global action for space safety, security and sustainability. The report is envisioned to serve as a networking and cooperation tool to advance cooperation and generate new ideas.

55. Stakeholders are encouraged to submit reports on progress regarding their activities on a voluntary basis in preparation for each World Space Forum. This documentation will form a key element of the future of the Forum.

56. Austria announced its continued support for the World Space Forum and that the Forum would again be held in Vienna in 2021, in cooperation with the Government of Austria.