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WIMUN NY 2025

STUDY GUIDE

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United Nations A /77/80

General Assembly

Distr.: General
24 June 2022
English
Original: Chinese/English/
French/Spanish/Russian

Seventy-sixth session
Item 97 (c) of the preliminary list*
Prevention of an arms race in outer space: further practical measures for the prevention of an arms race in outer space

Further practical measures for the prevention of an arms race in outer space

Report of the Secretary-General

Summary

The present report provides a consolidated summary of elements from the submissions received from Member States pursuant to resolution 76/230, without prejudice to their individual positions. It presents existing and potential threats and security risks to space systems, including those arising from actions, activities or systems in outer space or on Earth; the existing regulatory regime, as well as past and ongoing multilateral processes; and further practical measures for the prevention of an arms race in outer space.

* A/77/50.

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I. Introduction

1. In paragraph 7 of its resolution 76/230 on further practical measures for the prevention of an arms race in outer space, the General Assembly requested the Secretary-General, within existing resources, to seek the views and proposals of Member States on the provision of guarantees for the prevention of an arms race in outer space and preserving outer space for peaceful purposes, and to submit a substantive report, with an annex containing those views, to the General Assembly at its seventy-seventh session, for further discussion by Member States. The present report is submitted pursuant to that request.

2. On 11 January 2022, the Office for Disarmament Affairs sent a note verbale to all Member States drawing their attention to paragraph 7 of the resolution and seeking their views on the matter. The views received by 6 May 2022 are reproduced in the annex to the present report. Views received after 6 May have been posted on the website of the Office in the original language received. Replies received from other entities have also been posted on the website.

3. Sections II to V of the present report provide a consolidated summary of elements from the submissions received from Member States, without prejudice to their individual positions. Section VI sets out the observations and conclusions of the Secretary-General.

II. Background

4. States reiterated that the exploration and use of outer space should be carried out exclusively for peaceful purposes. Many States regarded outer space as a global commons. It was recalled that the exploration and use of outer space should be carried out for the benefit and in the interests of all countries.

5. States expressed the opinion that they are increasingly dependent on space-based capabilities, which were seen as increasingly essential for the welfare of humankind. They stressed the importance of outer space for the provision of services, including communications, positioning, navigation and timing, search and rescue and weather forecasting. In addition, they considered space-based assets to be vital for addressing such global challenges as climate change and the achievement of the Sustainable Development Goals. Given the increased reliance on satellites, the view was expressed that interference with or destruction of the services they provide could lead to enormous economic loss, serious social disorder and, in extreme cases, loss of lives.

6. A number of States stressed the importance of space systems for international and national security, including for the purposes of communications, command and control, navigation, intelligence, reconnaissance, early warning and the verification of arms control agreements.

7. The urgency and importance of preventing an arms race in outer space was stressed. It was also stressed that any armed conflict in outer space would have wide-ranging consequences and would likely harm many States not party to such a conflict. It was therefore considered that outer space security was an interest for all States, which have a common responsibility to prevent outer space from becoming a domain where active hostilities can occur.

8. A particular concern was expressed about the increasing role of commercial actors in military space activities, a development that was considered to be accelerating arms competition in outer space and blurring the boundary between civil and military activities. The widespread use of space for civilian and military purposes

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4 Did you know that...

Global commons or res communis are areas that are not under any national jurisdiction and are considered to be very important to the common interests of humanity. As highlighted by the International Court of Justice (ICJ) in its Advisory Opinion on the Legality of the Use by a state of Nuclear Weapons in Armed Conflict, "The existence of the general obligation of states to ensure that activities within their jurisdiction and control respect the environment of other states or areas beyond national control is now part of the corpus of international law relating to the environment". In fact, the outer space is not only one of the "global commons" protected under international law. Other examples include the high seas, Antarctica (see the Antarctic Treaty) and the atmosphere. Delegates are highly encouraged to research and evaluate the effectiveness of the policies and international legal frameworks governing and protecting other global commons.

5 Interesting facts...

Satellites are essential for monitoring climate change and collecting data for environmental research purposes. For instance, remote sensing helps gather data regarding deforestation, polar ice melting, water pollution and the conditions of our atmosphere. In particular, polar orbiting satellites are helpful in covering more parts of the northern latitudes. They are important for monitoring maritime security and the melting of ice caps in the Arctic.

5 Did you know that...

"The Access to Space 4 All Initiative" was set up by UNOOSA to bridge the gap between countries' accessibility to space. It provides research opportunities, as well as space infrastructure and information to many countries, especially developing ones. The initiative is essential for promoting sustainable development goals through increasing reachability to space technology.

was seen as leading to vulnerability for all States. It was therefore suggested that the interplay between civilian and military use of outer space be taken into account when considering measures to prevent an arms race in outer space.

III. Existing and potential threats and security risks to space systems, including those arising from actions, activities or systems in outer space or on Earth

9. Many States considered outer space to be increasingly congested, contested and competitive. They believed that the congestion has been caused by an increasing number of both active satellites and of pieces of debris. Such congestion was seen as having a potentially negative effect on the long-term sustainability of space activities, including by increasing the risk of collisions and generating additional debris. In addition, concern was expressed that the increasing number of actors in outer space and the diversification of their activities raise potential risks of misunderstanding and miscalculation, which could escalate tension and lead to conflict.

10. A number of States considered that strategic competition in outer space was intensifying and that such competition was presenting a challenge to international peace and security, including by increasing the potential for conflict. That competition was seen as primarily involving the major military powers. The view was expressed that the strategic context in outer space has degraded as military strategies have been developed that can facilitate so-called hybrid strategies involving the use of dual-use technologies and acts that fall below the threshold of armed conflict. It was suggested that the pursuit of dominance by one State could heighten the risk of the weaponization of outer space. It was also suggested that States that rely less on space assets could have an incentive to engage in threatening behaviour in outer space, without concern for the long-term sustainability of outer space activities.

11. Many States stressed the importance of preventing an arms race in outer space, which would consume significant resources and imperil the peaceful use and exploration of outer space. It was suggested that an arms race in space was already ongoing and should be contained. It was also suggested that a modern-day arms race in outer space was complex, encompassing ground-based components and defensive systems, increasing the risk of misinterpretation and miscalculation. The importance of differentiating between the legitimate military use and the weaponization of outer space was noted. Concern was expressed at national statements referring to outer space as a "warfighting domain".

12. It was noted that threats to space systems could come from four possible vectors: ground-to-space, space-to-space, space-to-ground and ground-to-ground. It was also noted that threats within those vectors could be categorized into those that are temporary and reversible, such as interference with radiofrequency signals or dazzling of remote sensing systems, and those that are irreversible, such as any means or methods that degrade or destroy a space system. Particular concern was expressed regarding certain types of threats, including ground-based anti-satellite systems and missile defence systems. Concern was also expressed over non-physical threats, including electronic warfare, such as jamming or interference, and cyberattacks. Concern was also expressed that States might use commercial actors to render orbits and radiofrequencies inaccessible to others through the deployment of mega-constellations. Low levels of trust and confidence between States and a lack of common risk perceptions were also considered to be sources of threats to outer space activities.

10 Did you know that...

The theory of hybrid warfare was developed by Frank Hoffman and he defined it as a "range of different modes of warfare including conventional capabilities, irregular tactics and formations, terrorist acts including indiscriminate violence and coercion and criminal disorder". Hybrid warfare has become increasingly popular in recent years and is threatening international security. It is challenging to tackle hybrid warfare as some of the military strategies such as those involving non-state actors, cyberwarfare and other forms of information technology may not meet the "armed attack" threshold. As a result, it has led to a lot of controversies as to whether self-defence could be initiated under Article 51 of the UN Charter. Article 51 states that "Nothing in the present Charter shall impair the inherent right of individual or collective self-defence if an armed attack occurs against a member of the United Nations…"

10 Something to think about

Contrary to popular belief, the launching state is not necessarily the owner of a space object. Since 2018, New Zealand has increased its relevance in space as a space-faring nation. New Zealand is known for launching military satellites for foreign governments, especially the United States, and has now become the fourth-largest launching state in the world. Delegates should consider the position and interests of various nations in outer space carefully.

12 Did you know that...

Whilst Megaconstellations serve the important purpose of ensuring broadband internet access, many astronomers and experts have spoken up about how mega-constellations have been hindering outer space exploration. According to David Koplow, the Scott K. Ginsburg Professor of Law at Georgetown University Law Centre in Washington DC, as the first big batch of Space X's Starlink satellites were launched in 2019, their brightness has greatly disrupted optical and radio astronomy as observatories struggle to adapt.

13. It was noted that some States are developing, testing, operationalizing, stockpiling and deploying in outer space a variety of counter-space capabilities that could be used to deny, disrupt, degrade or destroy civil, commercial or national security space capabilities and services. Several States expressed concern that the development of such counter-space capabilities could increase mistrust, as well as risks of misunderstandings and miscalculation.

14. It was noted that many space capabilities and technologies can be considered dual-use, having both civilian and military applications. Several States pointed to the challenges posed by the dual-use characteristics of most space systems, which have the potential to increase misunderstanding between States regarding their intentions, leading to unintended escalation. Particular emphasis was placed, however, on such functions as active debris removal and on-orbit servicing. It was noted that the technological advances beyond the development of dual-use capabilities were largely driven by the private sector. The involvement of the private sector in that regard was seen as increasing the difficulty of distinguishing between military and civilian space systems, thereby making it harder to identify threats and distinguish between innocuous and threatening behaviours. The dual-use nature of space technology was also considered to increase the complexity of possible approaches to the verification of outer space arms control. A number of States expressed the view that concerns related to dual-use objects and technologies required an approach focused on norms of responsible behaviour and on transparency and confidence-building measures. It was suggested that, in responding to concerns posed by dual-use systems, States should undertake to avoid in any way restricting the peaceful uses of outer space technology by all countries, including developing countries.

IV. Existing regulatory regime, past and ongoing multilateral processes

15. It was noted that international law applies to activities in outer space. It was stated that existing international law provides a strong framework for the governance of outer space activities. States cited examples of international agreements that apply in outer space, including the Charter of the United Nations; the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies; the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and under Water; the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, the Convention on International Liability for Damage Caused by Space Objects, the Convention on Registration of Objects Launched into Outer Space, the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, the Treaty between the United States of America and the Russian Federation on Measures for the Further Reduction and Limitation of Strategic Offensive Arms and the Treaty on the Prohibition of Nuclear Weapons. In addition, the Comprehensive Nuclear-Test-Ban-Treaty was also seen as relevant, although it has not yet entered into force.

16. A number of States stressed the importance of complying with existing international legal obligations, including disarmament and arms control obligations, including as a means for preventing conflict in outer space. It was argued that breaches of international law could contribute to degradation of trust, lead to an arms race and increase the risk of miscalculation, escalation and conflict. States recalled that the existing legal regime prohibits the placement of weapons of mass destruction in orbit around the earth, as well as the establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies. It was proposed that States promote awareness of

14 Interesting facts...

Techniques for deorbiting space debris generally fall into three primary categories, each targeting different types and sizes of debris:

1. Eliminating Small Objects with Laser Radiation: This method uses focused laser beams, either ground-based or space-based, to heat and vaporize tiny pieces of debris, causing them to disintegrate.
2. Redirecting Debris into Natural Disposal Orbits: Larger debris can be moved into safer trajectories using various propulsion technologies. This includes electric propulsion or rocket propulsion to push objects toward orbits where they naturally decay over time, as well as solar sails that harness sunlight pressure to guide debris out of congested areas. Electric propulsion uses electricity (often from solar panels) to ionize a gas like xenon, creating charged particles (ions) which are then expelled at high speeds to generate thrust. Electric propulsion is ideal for precise and gradual adjustments over time.
3. Slowing Down Debris for Atmospheric Re-Entry: In this approach, objects in low Earth orbit are decelerated using tools like ground-based lasers, which apply directed energy to create drag, or inflatable braking devices (IBDs) that increase resistance against the atmosphere. Additionally, robotic spacecraft, often referred to as "tugs," can attach to debris and physically guide it into denser atmospheric layers, where it burns up during re-entry.

14 Interesting facts...

Dual-use technologies in space refer to systems, tools, or technologies that can be used for both civilian (peaceful) and military (potentially hostile) purposes. These technologies are often developed for scientific, commercial, or communication purposes but have capabilities that can also serve defense or offensive applications. An example of this would be a satellite that is designed to be used for weather forecasting, communication, and Earth observation but could also be used for reconnaissance, intelligence gathering, and target identification.

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14 Interesting facts...

There are currently countless pieces of space debris in outer space with plentiful being too small to detect by radar or the latest technologies. Although Space Debris mitigation technologies are still in their early stages, progress has been made. The World Economic Forum has recently introduced ELSA, a small satellite with a powerful magnet, developed by Astroscale. ELSA is designed to attract space debris and remove them from orbit. Even though purchasing and investing in such new technologies are initially expensive, according to the Federation of American Scientists, it is estimated that a net benefit can be generated within a decade.

14 Something to think about

Since the Convention on the International Liability for Damage Caused by Space Objects (hereinafter the Liability Convention) was drafted more than 50 years ago, the drafters did not foresee the commercialization of outer space. Although many legal issues and debates arise surrounding space commercialization, states mostly have the initiative to ensure sufficient insurance and regulation for activities by non-state actors or companies. This is because, under the Liability Convention, victim states may hold the launching state liable to pay compensation for damage caused to their space objects. Delegates are encouraged to brainstorm on space law and policies that may help regulate space commercialization, as well as problems with only holding the launching state accountable but not owners of the space object or companies.

14 Something to think about

If you were the leader of a state, would you be willing to share your military strategies and latest technologies publicly or with other states? Why? The same idea of transparency and information sharing was suggested by the group of governmental experts on lethal autonomous weapons systems, however, little progress has been made in limiting and governing their use. Why do you think that is the case?

13. It was noted that some States are developing, testing, operationalizing, stockpiling and deploying in outer space a variety of counter-space capabilities that could be used to deny, disrupt, degrade or destroy civil, commercial or national security space capabilities and services. Several States expressed concern that the development of such counter-space capabilities could increase mistrust, as well as risks of misunderstandings and miscalculation.

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15 Something to think about

Think critically on whether the existing frameworks are really strong enough to help humanity overcome the challenges faced in outer space. As mentioned, some legal frameworks were drafted 50 years ago, when the issues of space debris, commercialization and tourism, the rapid development of space technologies, congestion of the Lower Earth Orbit, the new political landscape etc. were not foreseen.

15 Did you know that...

The Convention on Registration of Objects Launched into Outer Space (hereinafter the Registration Convention) has long been criticized for its ineffectiveness in ensuring consistent registration of space objects. There are currently no effective enforcement mechanisms or consequences for states that fail to register their space objects. As a result, states avoid registering their inactive satellites and space debris to dodge liability. For instance, as observed in Article 4 of the Registration Convention, wordings such as “as soon as practicable” or “to the greatest extent feasible” generate great flexibility for states and weaken requirements for registration.

16 Interesting facts...

The **Outer Space Treaty (OST) of 1967**, which serves as the foundation of international space governance, explicitly prohibits certain activities on celestial bodies, emphasizing their use for peaceful purposes. **Article IV (Peaceful Use of Celestial Bodies)** prohibits the placement of nuclear weapons or any other weapons of mass destruction on celestial bodies, requires that celestial bodies (e.g., the Moon, Mars) be used exclusively for peaceful purposes, and forbids the establishment of military bases, installations, and fortifications or the testing of weapons on celestial bodies.

international agreements that are applicable to outer space activities and of internationally agreed principles related to outer space.

17. A number of States expressed the view that the existing legal regime does not prohibit the placement in orbit of weapons other than weapons of mass destruction, nor does it effectively prevent the use of force against outer space objects. They stated that, accordingly, the existing legal regime did not provide sufficient guarantees against an arms race in outer space. It was also stated that the existing legal regime was insufficient to guarantee unrestricted access to space by all States now and in the future.

18. It was recalled that the engagement of the General Assembly with outer space dated back to 1958, when it adopted a resolution on the question of the peaceful use of outer space. It was also recalled that the General Assembly, at its tenth special session (special session devoted to disarmament), called for the prevention of an arms race in outer space and mandated negotiations to that end. It was noted that the Assembly did not prescribe what kind of outcome should result from such negotiations. A number of States considered that the notion of "preventing an arms race in outer space" was rooted in the dynamics of the Cold War and focused on competition among the major powers. It was noted that, since the 1980s, the General Assembly had adopted annual resolutions calling on the Conference on Disarmament to negotiate effective and verifiable agreements aimed at preventing an arms race in outer space. A number of States indicated that they understand the prevention of an arms race in outer space in a wider sense, pertaining generally to questions of international security related to outer space.

19. States recalled the work of the Group of Governmental Experts on Further Practical Measures for the Prevention of an Arms Race in Outer Space and the report that it produced (A/74/77).

20. It was suggested that Member States should review the report of the Secretary-General on reducing space threats through norms, rules and principles of responsible behaviours (A/76/77). A number of States emphasized the role of the open-ended working group on reducing space threats through norms, rules and principles of responsible behaviours, established pursuant to General Assembly resolution 76/231. The view was expressed that the open-ended working group made it possible for the prevention of an arms race in outer space to be addressed in a comprehensive and holistic manner without prejudice to the form of the outcome. It was noted that the open-ended working group provides a forum for engagement with all stakeholders, including States, civil society and private sector actors. It was suggested that the work of the open-ended working group should lead to the adoption of a legally binding instrument. Calls were made for all States to engage constructively in the context of the open-ended working group.

V. Further practical measures for the prevention of an arms race in outer space

21. Many States called for engagement in an inclusive multilateral process to take forward discussions related to the prevention of an arms race in outer space. Various views were expressed on the goals for such engagement, including to preserve outer space for peaceful purposes, tangibly improve space security in the interest of all States, maintain outer space as a domain free of any type of weapons and prevent outer space from becoming an arena of armed confrontation. A number of States called for such engagement to occur in existing forums, including the Conference on Disarmament and the open-ended working group on reducing space threats through norms, rules and principles of responsible behaviours, and in the context of related

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17 Did you know that...

All states have an equal right to access and explore outer space. As stated in Article 1 of the Outer Space Treaty, "the exploration and use of outer space…shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind." This principle is also enshrined in the preamble of the treaty - "recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes." Delegates are highly encouraged to also read the preambles of the relevant treaties, as they are essential for understanding the objective and purposes of the treaty and may aid in its interpretation according to Article 31 of the Vienna Convention on the Law of the Treaties.

19 Something to think about

The Group of Governmental Experts was established by the UNGA in 2017 to make recommendations on drafting an internationally legally binding instrument on the prevention of an arms race in outer space. Take note of the geographical distribution and level of space development of member states that were invited by the Secretary-General to nominate experts to join the work of the group. Consider whether the choice of states is the most suitable for achieving the mandate given by the UNGA to the group.

21 Did you know that...

Under the "Due regard principle" enshrined in Article IX of the Outer Space Treaty, member states are under the obligation to demonstrate their consideration of the corresponding interests of other states. This obligation encourages states to be transparent and public about their space interests and plans. Moreover, if a state believes that another state's activity would potentially cause harmful interference with its activities in outer space, they have the right to request consultation concerning such an activity. This right is exclusive to states that have communicated clearly and given legally valid notice to all other states regarding their interests in space.

instruments, such as The Hague Code of Conduct against Ballistic Missile Proliferation. A number of States emphasized the need to bring all stakeholders together in the existing forums with a view to enhancing cooperation and trust among all stakeholders, in particular among States.

22. In respect of the development and review of measures for the prevention of an arms race in outer space, as well as broader measures for security and the prevention of conflict in outer space, States suggested a number of matters should be to be taken into account, including:

(a) A common understanding and analysis of what constitute space threats and responsible behaviours to avoid or prevent such threats;

(b) All segments of a space system;

(c) All threats to space systems comprehensively and all vectors for such threats, including Earth-to-space, space-to-space, space-to-Earth and Earth-to-Earth;

(d) The role of new and novel technologies, as well as such existing ones as missiles, and kinetic and non-kinetic threats;

(e) Mutual understanding between States of their capabilities and intentions in outer space;

(f) Misperception of actions and effects, and misunderstanding of systems and deployments;

(g) Absence of functioning arms control regimes and of agreed-upon rules, norms and principles, including for their interpretation and application, and incomplete agreements;

(h) Lack of trust and verification measures.

23. It was also stated that there was a need to strengthen initiatives aimed at promoting cooperation and assistance in the area of outer space and to promote exchanges, technical assistance, technology transfer and the use of outer space for peaceful purposes.

24. States expressed various views on the notion of “guarantees” in the context of the prevention of an arms race in outer space. The view was expressed that the provision of guarantees could entail a combination of pragmatic, reliable and holistic measures that, in combination and over time, would limit the drivers of an arms race and promote the safety, security and sustainability of outer space. A number of States variously regarded the concept as being unclear, an oversimplification of the challenges to outer space security and implying a narrow focus only on legally binding treaties, or as otherwise singling out or limiting approaches.

25. Many States expressed support for a comprehensive approach for the prevention of arms race in outer space, as well as broader measures for security and prevention of conflict in outer space. It was considered that such an approach should address all threats and threatening and destabilizing behaviours in a holistic manner, on the basis of which further specific, tailored and practical measures to address those threats could be developed. It was further considered that such an approach could involve:

(a) Compliance with and full implementation of existing relevant agreements and the review of existing and future counterspace threats as well as the overarching international security environment;

(b) The subsequent development of a comprehensive, step-by-step approach, including voluntary commitments related to norms of responsible behaviour and other transparency and confidence-building measures, in addition to the potential

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21 Did you know that...

The Hague Code of Conduct is a political initiative and non-legally binding instrument that aims to restrict ballistic missile proliferation globally. However, if Article IV of the Outer Space Treaty is read closely, delegates may realize that the wording of the provision permits transiting nuclear weapons in outer space on ballistic missile systems. According to the Arms Control Association, the Outer Space Treaty also does not restrict the launching of ballistic missiles to outer space.

22 Something to think about

The Outer Space Treaty does not prohibit the deployment of military personnel by member states for peaceful purposes like scientific explorations in outer space. Moreover, the treaty allows for non-aggressive military activities that aid military operations on Earth, for instance using satellites for positioning, monitoring, and communication purposes. Apart from satellite collisions, would such military activities or the presence of military personnel lead to more tension or misunderstandings between states in outer space?

consideration of concepts and proposals for new, legally binding agreements that are equitable and effectively verifiable;

(c) Examining other measures available to States that could help maintain international peace and security.

26. In that connection, many States expressed support for development and implementation of norms, rules and principles of responsible behaviours. Many States considered that gaining a better understanding of responsible and irresponsible behaviours would increase predictability and avoid tensions in outer space. It was suggested that such an approach could entail prohibitions and would be less likely to be overtaken by future technological developments. A number of States expressed the view that a capability-oriented approach focused on prohibiting specific systems would be too narrow and insufficient.

27. It was considered that any possible future measures should be developed in accordance with the criteria agreed by the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities, which indicated that any such measures should:

(a) Be clear, practical and proven, meaning that both the application and the efficacy of the proposed measures have been demonstrated by one or more actors;

(b) Be able to be effectively confirmed by other parties in its application, either independently or collectively;

(c) Reduce or even eliminate the causes of mistrust, misunderstanding and miscalculation with regard to the activities and intentions of States.

28. In addition, it was suggested that any such measures should be equitable and enhance national security, the terms of any agreement must be defined with reasonable precision and any agreement must use precise language to specify what compliance and non-compliance would look like and how it would be measured within the constraints of currently available technology.

29. States suggested a range of possible measures that could be developed, including the following proposed obligations or commitments:

(a) Refrain from actions, operations and activities that pose a threat or might easily be misperceived as a threat to security and stability;

(b) Not to use space objects to destroy targets on Earth, in the atmosphere or in outer space;

(c) Not to destroy, damage or change the flight trajectory of space objects of other States;

(d) Not to develop, test or deploy space weapons, including those to be used for missile defence, and to destroy any such weapons already in existence;

(e) Not to use crewed spacecraft for military purposes;

(f) Not to assist or incite others to engage in such activities;

(g) Not to conduct destructive direct-ascent anti-satellite missile tests.

30. States were called upon to better supervise commercial actors under their jurisdiction to ensure that they did not engage in irresponsible behaviours. It was suggested that States commit to minimizing the intentional creation of debris, and that norms for the conduct of proximity and rendezvous operations be developed.

wfuna

29 Something to think about

Anti-satellite (ASAT) tests are conducted by nations to disable or destroy satellites, often through direct physical impact or other means of incapacitation. These tests are a significant contributor to the generation of space debris, as the destruction of satellites produces fragments that remain in orbit. Space debris poses a serious threat by increasing the likelihood of collisions with operational spacecraft and other orbital objects, endangering the security and functionality of space systems.

30 Something to think about

PROs refer to the controlled approach of a spacecraft to another space object or satellite, either for cooperative purposes (e.g., servicing or docking) or non-cooperative scenarios (e.g., inspection or debris removal). As these activities become more common with advances in technology, norms are essential to ensure safety, prevent collisions, and maintain trust among space actors.

30 Did you know that...

States or entities conducting PROs should share details of the mission's purpose, timeline, and expected outcomes and clearly identify their spacecraft and the purpose of the operation to build trust and avoid suspicions of hostile intent. The challenge with PROs is that they can be used for both civilian purposes (e.g., satellite servicing) and military objectives (e.g., inspection or interference), raising concerns about intent. Existing norms are voluntary, and adherence depends on the good faith of space actors.

30 Something to think about

Abandoned or inactive satellites are often targeted by states for military or anti-satellite missile tests as states do not have the incentive to remove them. According to the National Aeronautics and Space Administration (NASA), two out of three top space junk-producing missions are anti-satellite weapon tests. Various delegates have expressed their concerns on the issue of the development of anti-satellite weapons in the 78th session, the 17th meeting of the 1st committee of the GA in 2023.

consideration of concepts and proposals for new, legally binding agreements that are equitable and effectively verifiable;

(c) Examining other measures available to States that could help maintain international peace and security.

26. In that connection, many States expressed support for development and implementation of norms, rules and principles of responsible behaviours. Many States considered that gaining a better understanding of responsible and irresponsible behaviours would increase predictability and avoid tensions in outer space. It was suggested that such an approach could entail prohibitions and would be less likely to be overtaken by future technological developments. A number of States expressed the view that a capability-oriented approach focused on prohibiting specific systems would be too narrow and insufficient.

27. It was considered that any possible future measures should be developed in accordance with the criteria agreed by the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities, which indicated that any such measures should:

(a) Be clear, practical and proven, meaning that both the application and the efficacy of the proposed measures have been demonstrated by one or more actors;

(b) Be able to be effectively confirmed by other parties in its application, either independently or collectively;

(c) Reduce or even eliminate the causes of mistrust, misunderstanding and miscalculation with regard to the activities and intentions of States.

28. In addition, it was suggested that any such measures should be equitable and enhance national security, the terms of any agreement must be defined with reasonable precision and any agreement must use precise language to specify what compliance and non-compliance would look like and how it would be measured within the constraints of currently available technology.

29. States suggested a range of possible measures that could be developed, including the following proposed obligations or commitments:

(a) Refrain from actions, operations and activities that pose a threat or might easily be misperceived as a threat to security and stability;

(b) Not to use space objects to destroy targets on Earth, in the atmosphere or in outer space;

(c) Not to destroy, damage or change the flight trajectory of space objects of other States;

(d) Not to develop, test or deploy space weapons, including those to be used for missile defence, and to destroy any such weapons already in existence;

(e) Not to use crewed spacecraft for military purposes;

(f) Not to assist or incite others to engage in such activities;

(g) Not to conduct destructive direct-ascent anti-satellite missile tests.

States were called upon to better supervise commercial actors under their jurisdiction to ensure that they did not engage in irresponsible behaviours. It was suggested that States commit to minimizing the intentional creation of debris, and that norms for the conduct of proximity and rendezvous operations be developed.

30 Something to think about

How can states better supervise commercial actors? Delegates should critically assess the pros and cons of different state policies. For instance, the United States's Commercial Space Launch Act (1984) has set the requirement that companies must obtain liability insurance to cover damages to third parties or other entities up to a certain amount. For damages exceeding the insurance coverage, the U.S. government agrees to indemnify (compensate) private operators up to a defined cap, with the expectation that operators will act responsibly. While private companies assume some operational responsibilities, the state remains the ultimate guarantor of compliance with international space law. Nonetheless, this raises the issue of whether OST should be revised to address the growing role of the private sector. Key areas for revision might include: 1) clearly defining the extent of state responsibility for private actors, including mechanisms for ensuring adequate oversight and compliance, 2) updating liability frameworks so that they regulate private mega-constellations and the commercialization of space tourism. The OST establishes general principles but it does not address the unique challenges posed by megaconstellations and space tourism. For example, the OST does not regulate the number of satellites a state or company can deploy, leading to concerns about overcrowding in low Earth orbit (LEO). Additionally, The OST does not address the rights or protections of space tourists, leaving liability unclear in cases of injury or death. What does this have to do with preventing an arms race in outer space? First, Satellites in megaconstellations often have dual-use capabilities, meaning they can be used for both civilian and military purposes. Second, Crowded orbits as a result of launching megaconstellations make it harder to distinguish between benign activities and hostile actions. States can more easily launch "inspection" satellites to get a closer look at their adversaries' space assets under the guise of maintenance or debris removal. Third, spaceports and launch vehicles developed for tourism could also be used for military purposes, such as deploying payloads or weapons into orbit. The potential weaponization of space tourism infrastructure could blur the lines between civilian and military intentions. These are just some of the reasons why the OST should be revised.

31. The view was expressed that the effective application of sanctions and export controls were useful tools in limiting the proliferation of technologies that could have a destabilizing effect in outer space.

32. A call was made for a ban on the placement of weapons in outer space and on the threat or use of force against space objects. Many States called for a broader approach to the prevention of an arms race in outer space that takes into account issues beyond the placement of weapons in outer space.

33. The political commitment undertaken by some States not to be the first to place weapons in outer space was highlighted. It was suggested that the “no first placement” initiative had made significant contributions to international peace and security. A number of other States expressed doubt that the no-first-placement initiative met the criteria for transparency and confidence-building measures set out in the report of the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities. Those States highlighted what they perceived to be shortcomings in the no-first-placement initiative, including its failure to address Earth-based weapons that can target objects in outer space. The difficulty in determining what constitutes a space weapon was noted.

34. A number of States highlighted the draft treaty on the prevention of the placement of weapons in outer space and of the threat or use of force against outer space objects as a basis for the negotiation of a legally binding instrument. A number of States were of the view that the draft treaty would not achieve the goal of preventing an arms race in outer space, would not enhance space security and was not a sufficient basis for a future legally binding instrument. A number of States considered that the draft treaty did not address all relevant threats, including ground-based threats, and dual-use systems, did not define what constitutes a space weapon and lacked verification measures.

35. Transparency and confidence-building measures were considered to be an important step, on which progress has been made, towards the prevention of an arms race in outer space. It was noted that transparency and confidence-building measures can reduce the risks of miscommunication, misinterpretation and inadvertent escalation. The view was expressed that transparency and confidence-building measures were supplementary to legally binding instruments. The view was also expressed that such measures should be oriented towards the goal of a legally binding instrument. It was suggested that any future legally binding instrument be accompanied by further transparency and confidence-building measures. States recalled the report of the Group of Governmental Experts and the Guidelines for the Long-term Sustainability of outer Space Activities of the Committee on the Peaceful Uses of Outer Space.

36. A number of States called for the implementation and further elaboration of transparency and confidence-building measures, in particular those that enhanced dialogue and communication. Such measures included:

(a) Publicly sharing elements of national space doctrines, policies and strategies, including in relevant forums;

(b) Transparency in the sharing of orbital data catalogues;

(c) Reporting on military space expenditures, as well as other national security space activities, as appropriate, in their submissions to the United Nations Report on Military Expenditures;

(d) The establishment of bilateral and multilateral systems of contact points and consultation and deconfliction mechanisms, in order to reduce the risk of escalation and conflict in space;

33 Something to think about

Many terms and phrases used in the OST are not defined and can be defined in different ways.; Here are some examples: 1) the OST states that the Moon and other celestial bodies must be used "exclusively for peaceful purposes," but does not define what constitutes "peaceful." Does "peaceful" mean strictly non-military, or does it allow for defensive military activities, as some states interpret? 2) States must avoid "harmful contamination" of celestial bodies. What level of contamination is considered "harmful"? Is any alteration to a celestial body's environment prohibited, or only those deemed significant? 3) States are required to conduct space activities with "due regard" to the corresponding interests of other states. What constitutes "due regard"? This term is subjective and open to interpretation, making it difficult to resolve disputes over perceived interference or negligence. 4) The OST and related treaties, such as the Liability Convention, use the term "space object" but do not define it. Does "space object" include smaller components like debris, or only fully functional satellites? 5) The OST does not define where "outer space" begins. The lack of a defined boundary between airspace (sovereign to states) and outer space creates legal uncertainties regarding jurisdiction and the application of space law. While the OST remains a cornerstone of international space law, the missing definitions highlight the need for clarifications through additional agreements.

36 Something to think about

Instead of seeking an ineffective universal agreement, sometimes regional agreements or agreements between like-minded states could achieve a bigger step towards solving the problem and pave the way for expanding the project. The Artemis Accords was signed between 40 states to date, highlights the importance of transparency and requires its partner nations to publicly disclose their policies and plans in outer space.

(e) Adherence to The Hague Code of Conduct against Ballistic Missile Proliferation, in particular by States with significant activities in the area of ballistic missiles and space launch vehicles.

37. Many States considered that the adoption of a legally binding instrument was necessary to prevent an arms race in outer space. The view was expressed that any potential future legally binding arms control agreement related to outer space should have clear objectives and avoid restrictions on the peaceful exploration and use of outer space. It was suggested that such an instrument could reaffirm existing international legal norms and principles that help prevent an arms race in outer space, as well as codify accepted behaviours and standards between States into law. It was proposed that, before formally launching negotiations on a legally binding instrument, a technical expert group could be established in order to hold in-depth discussions on such technical issues as definition, scope and verification; further refine and improve the existing consensus and outcomes; and make full preparations for the negotiations on such an instrument.

38. Many States considered that voluntary commitments, non-legally binding guidelines and principles and legally binding instruments should not be seen as mutually exclusive, but rather as mutually reinforcing. It was recalled that the Outer Space Treaty codified into law a global consensus on norms. A number of States considered that the development of non-binding norms could constitute a first step, including as part of a step-by-step approach, that could lead to the development of a legally binding instrument. The view was also expressed that establishment of non-binding rules should only be an intermediate step towards the adoption of a legal instrument.

VI. Observations and conclusions of the Secretary-General

39. At the seventy-sixth session of the General Assembly, I issued a report (A/76/77) that included a consolidated summary of elements from the submissions received from Member States pursuant to resolution 75/36, as well as my observations and conclusions, which I reaffirm in their entirety. The new work that has been initiated and pursued since the issuance of that report has been encouraging.

40. As I referred to in my report entitled "Our Common Agenda" (A/75/982), outer space has been regarded as a global common, beyond the jurisdiction of any one State. The potential for its peaceful, secure and sustainable use would benefit all humanity today and into the future. Governance arrangements for outer space were established in an era of exclusively State-based activity. Space assets have transformed the way we live and outer space systems are vital for understanding and solving global problems, such as implementation of the Sustainable Development Goals and climate action. They also pose new risks to security, safety and sustainability. Increasing congestion and competition in outer space could imperil access and use by succeeding generations. Our governance and regulatory regimes require updating in line with this new era to preserve outer space as a global common.

41. Recent developments have shown that progress in governance is possible, but many gaps remain. I continue to believe that a combination of binding and non-binding norms is needed, building on existing frameworks and drawing in the full range of actors now involved in space exploration and use. That is one of the reasons I proposed to convene a multi-stakeholder dialogue on outer space as part of the Summit of the Future in 2023, with a view to seeking high-level political agreement on the peaceful, secure and sustainable use of outer space. I am pleased that Member States have expressed support for this proposed dialogue and that the United Nations system has been invited to continue working on this proposal with

40 Something to think about

The Secretary-General concludes his report with this message, "Our governance and regulatory regimes require updating in line with this new era to preserve outer space as a global common." What changes will you propose on behalf of the country you have been assigned to update the regulatory regimes that governs the use of outer space?

relevant mandated bodies to inform intergovernmental processes as part of preparations for the proposed Summit of the Future.

42. It is recommended that Member States study the ideas contained in the present report and consider how they can be taken forward within relevant United Nations forums, including the Conference on Disarmament and the subsidiary organs and other bodies established pursuant to the resolutions of the General Assembly, including the open-ended working group on reducing space threats through norms, rules and principles of responsible behaviours and the Disarmament Commission.

Annex

Replies received

A. Governments

Canada

[Original: English and French] [5 May 2022]

The present submission provides Canada's views on General Assembly resolution 76/230, entitled "Further practical measures for the prevention of an arms race in outer space". It responds to a note verbale from the Office for Disarmament Affairs sent pursuant to paragraphs 7 of the above-mentioned resolution, in which the Assembly requests the Secretary-General to seek the views of Member States. Canada was honoured to submit our views previously on General Assembly resolution 75/36, entitled "Reducing space threats through norms, rules and principles of responsible behaviour". This submission below should be viewed as building on those remarks.

Importance of enhanced space security

The number of satellites in space is growing, as is the number of people benefiting from those satellites. From financial transactions to emergency response, space technology is integrated into almost every facet of our day-to-day lives. These space systems are intrinsically linked to our economy, development, and security. Yet, they are highly vulnerable to both natural and human-made threats. The adverse actions of even one state can compromise these assets and jeopardize access to space for all.

Canada remains convinced that the long-term viability of peaceful human activities in space will remain precarious unless the security dimension of outer space is effectively addressed. While Canada has actively participated in discussions at the Conference on Disarmament on the prevention of an arms race in outer space (PAROS), we recognize the need to move beyond the narrow focus on capabilities and widen considerations to behaviours and actions that increase tensions between states, can fuel an arms race, and increase the potential for conflict. In addition, Canada supports preserving the space environment by developing measures to curb threats against all aspects of space systems, which includes satellites, the ground infrastructure, and the data links connecting them to satellites.

Factors that undermine space security

Canada recognizes that threats to the stability and security of outer space are driven by more than just military capabilities.

Lack of trust: Security is not simply a matter of weaponry. It is also driven by perceptions of others behaviours and actions. An environment where there is a low level of confidence between states fuels uncertainty regarding the intended use of military capabilities.

Miscalculation: States can have different assessments over the degree to which they perceive certain actions or activities as threatening. This discrepancy can lead states miscalculating the risk associated with and consequences of their actions.

Misunderstanding: The dual-use nature of space technology creates the possibility that states will misunderstand the intentions of other states. This is

further compounded by the unique nature of the space domain in which knowledge of the operating environment is inherently difficult. This can lead to unintentional escalations.

Provisions of guarantee to enhance space security

Canada views provision of guarantees as those measures that, in combination and over time, would limit the drivers of an arms race and promote the safety, security, and sustainability of outer space. No single mechanism, binding or voluntary, can guarantee PAROS. Rather, a combination of pragmatic, reliable and holistic measures offers the best chance of achieving that objective.

Instruments

Since the concept of PAROS was first introduced at the First Special Session of UN General Assembly devoted to disarmament in 1978, it has never mandated a particular instrument. As such, when considering measures that would enhance space security, we should not limit ourselves in the mechanisms at our disposal. It is important to note that these instruments are not mutually exclusive and do not rule out the eventual adoption of stronger measures in the future.

Existing international law: Canada remains fully committed to the international legal framework governing the use of space. Ratification, national implementation, and adherence to key space treaties and other international instruments contribute to a more predictable space environments.

Sanctions and export control laws: These foreign policy tools can be effective and appropriate measures in restricting the proliferation of certain technologies, thereby contributing to the stability of space.

Politically binding instruments: Voluntary and non-binding norms, rules and principles can provide a pragmatic first step to developing consensus on responsible behaviours in space, and form the basis for future legally binding measures. By supporting security and stability in space, they also create the environment of trust conducive for more ambitious negotiations between states.

Transparency and confidence-building measures: Transparency and confidence-building measures are useful mechanisms that can help avoid misunderstandings and miscalculations. Given the dual-use nature of many space assets, transparency and confidence-building measures can help alleviate misperceptions regarding how capabilities are being used. For instance, the exchange of information is a simple and effective way to ensure transparency regarding space activities, and good communication is key to building trust.

Legally binding instruments: International treaties can codify accepted behaviours and standards between states into law. While it signifies a stronger commitment by states, it does not necessarily guarantee a more effective outcome or greater compliance than other instruments.

Criteria of effective provisions:

Reaching consensus on an agreement, binding or non-binding, does not guarantee PAROS or increased space security. Canada has long reiterated that agreement must meet the following standards:

Precise definitions: The terms of an agreement must be defined with reasonable precision so as to minimize ambiguity and contradictory interpretations of the rules. While some have argued “constructive” ambiguity may be necessary to foster consensus and the eventual adoption of an agreement, such an approach

should be used cautiously. It is essential to come to a shared understanding of the nature of an obligation – a commonality of mind – in order to ensure that parties apply the same standards when judging the compliance of others.

Comprehensive scope: The best way for a mechanism to increase space security is for the scope of the agreement to holistically address all threats. It is important to highlight that space systems include not just satellites in space but all the elements needed to function such as ground infrastructure and data links. They are vulnerable to a broad range of traditional and emerging threats originating on earth or in space. A narrow focus on certain technology or locations alone cannot ensure stability if other threats to space systems and actors remain unaddressed.

Effective provisions for verification: States will only agree to restraints if they can be provided assurances that all parties are equally living up to the commitment. The terms of the agreement should use precise language to specify what compliance and non-compliance would look like and how it would be measured within the constraints of currently available technology. Verification measures should be practical and effective. When compliance is called into question and verification provisions are inadequate, the confidence in the system declines and our ability to meet PAROS diminishes.

Recommendations to enhance space security

Canada views the development of norms of responsible behaviour as the most effective approach to enhancing space security and PAROS. In this regard there are some positive developments. In response to General Assembly resolution 76/231, states are actively participating in the newly established open-ended working group on reducing space threats through norms, rules and principles of responsible behaviours. Canada views this as a pragmatic way to advance the international dialogue on space security issues. The challenges to treaty-making efforts is the lack of understanding amongst states about what conduct leads to the misunderstanding that could fuel an arms race or conflict. Once that is established, translating this understanding into a treaty will be greatly facilitated. This is a proven approach, as demonstrated by the establishment of the 1967 Outer Space Treaty, whereby a global consensus on norms was eventually codified into law.

Conclusion

Decades of discussion on PAROS has not yielded tangible outcomes. It is time to shift the focus to a more holistic approach that encompasses a number of different mechanisms to establish responsible behaviours, thereby resulting in long-term space security. By fostering greater confidence and transparency in the space environment, we can create the climate of confidence necessary to develop future measures that could govern space. Canada looks forward to further engagement with states on this important issue.

Chile

[Original: Spanish]
[6 May 2022]

Chile considers that outer space should be explored and used for peaceful and scientific purposes only. One such use of outer space is as a vantage point from which to observe various Earth-based phenomena that are of interest to humankind. International cooperation in the use of space science and technology should therefore be promoted so that countries can benefit from space-related knowledge and

applications, and thus help to address global challenges through initiatives such as the development of products that have an impact on people.

The 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, should be updated to include a reference to Member States' renewed commitment to the preservation of outer space as a neutral zone for scientific and technological development.

It is necessary to raise international public and social awareness of the 1972 Convention on International Liability for Damage Caused by Space Objects and thereby establish an informative process to influence decision-making by States involved in space development.

It is also essential to update and raise public awareness of the 1976 Convention on Registration of Objects Launched into Outer Space in order to create a general understanding of the importance of registering and knowing the characteristics of space systems launched into space.

Member States should be requested to ratify the 1984 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies and to encourage other States to do the same.

Furthermore, it is necessary to update and publicly disseminate (i.e. create a process to raise international social awareness of) the following instruments:

1. The 1963 Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space
2. The 1982 Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting
3. The 1986 Principles Relating to Remote Sensing of the Earth from Outer Space
4. The 1992 Principles Relevant to the Use of Nuclear Power Sources in Outer Space

China

Original: Chinese]
[29 April 2022]

As a global commons, outer space is closely linked with the security and welfare of humanity, and embodies the essence of a community with a shared future for humanity. The 65 year history of human development and use of outer space clearly shows that while outer space is playing an ever more prominent role in driving human civilization forward and promoting economic and social development, security challenges and threats in outer space are also on the rise. In particular, the growing risks of the weaponization of and an arms race in outer space have become the fundamental threat to the peaceful uses of outer space.

Preventing an arms race in outer space and ensuring that it is used for peaceful purposes are the common consensus of the international community, and are also the highest priority and most pressing task and goal for outer space security. In recent years, a certain superpower has been scaling up plans and actions to pursue unilateral military and strategic advantages and gain control of outer space. The rising tension between the urgent needs of countries to safeguard the security of outer space and promote its peaceful uses and the superpower's pursuit of dominance in outer space has further exposed the inadequacy of the existing international legal

instruments on outer space in meeting new challenges. It is therefore imperative for the international community to take further practical measures as soon as possible to close the loopholes in existing international law by negotiating an international legally binding instrument on the prevention of an arms race in outer space (PAROS), with a view to providing the most fundamental and effective guarantees for PAROS and the peaceful uses of outer space.

I. Overview of the current security situation in outer space

Outer space is of vital importance to the security and welfare of humankind. With their interests closely intertwined, countries share weal and woe in outer space. In recent years, more and more countries have become extensively and deeply engaged in space activities, and some commercial institutions are also getting involved in space launch and space application undertakings. Given the growing number of stakeholders in outer space, maintaining lasting peace and security in this new domain is becoming ever more important.

At the level of safety, the significant increase in outer space activities and participants has entailed problems such as orbital congestion, collision risks and space debris that pose challenges to the long term sustainability of outer space activities. At the level of security, the pursuit of dominance and excessive and improper military use of outer space by a certain country have heightened the risks of the weaponization of outer space and the use of outer space as a battlefield, and undermined outer space security and global strategic stability. In terms of their importance, the issues of these two levels are not of the same order of priority, and their resolution requires different approaches. It is important to avoid equating the two, still less reversing their order of importance. If the weaponization of and an arms race in outer space cannot be prevented, it is useless to discuss the security and peaceful uses of outer space.

Currently, the risks of the weaponization of and an arms race in outer space have become more real and urgent, as mainly evidenced in the following three areas:

First, the atmosphere of competition and confrontation in outer space is intensifying. Preoccupied with major Power competition in outer space, a certain superpower persists in hyping the threat posed by other countries and provoking military confrontation, while at the same time insisting on the importance of maintaining its own global leadership in outer space. This sort of hegemonic thinking and Cold War mentality are the fundamental motivators of the growing risks of the weaponization of and an arms race in outer space.

Second, the trend toward turning outer space into a battlefield is gaining momentum. Driven by a certain superpower, some countries and military blocs have publicly defined outer space as a “warfighting domain”. They have established independent outer space military agencies, continuously ramped up military space investment, sped up the development of outer space combat systems and military alliances, and comprehensively advanced war preparedness in outer space. A certain grouping of countries has defined outer space as an “operational domain” and placed it within the scope of application of its “collective defence”. This military expansion and formation of military alliances for turning outer space into a battlefield are a clear manifestation of the rising risks of the weaponization of and an arms race in outer space.

Third, the fragility of outer space security is becoming more apparent. A certain superpower, being the first country to conduct anti-satellite weapon tests in outer space, has carried out more such tests and created more space debris than any other country. Its continuous development of global missile defence systems and long range, high speed precision strike weapons poses a serious threat to outer space

security and global strategic stability. The country has also frequently tested high and low orbit proximity reconnaissance and rendezvous technology, deployed an upgraded Counter Communications System (CCS) which can jam and even interrupt the satellite communications of adversary countries, and used low Earth orbit commercial satellite mega constellations such as “Starlink” to grab frequency channel resources in space and interfere with the normal outer space activities of other countries. These activities threaten the safety of outer space assets and astronauts and increase the risk of conflicts in outer space.

II. Existing safeguard measures and international PAROS efforts

When humanity first began to use outer space, the international community had the foresight to commit itself to preventing outer space from becoming a new battlefield like the land, oceans and atmosphere. As early as 1958, the General Assembly adopted a resolution on the question of the peaceful use of outer space, which clearly expressed the wish to avoid extending national rivalries into outer space. In 1978, the first United Nations General Assembly Special Session on Disarmament specifically called for efforts to achieve the goal of PAROS through negotiations. In succeeding decades, the international community has made unremitting efforts to implement that consensus.

The legal regime: From the 1960s to the 1970s, the international community formulated a series of international legal instruments such as the Outer Space Treaty, which established basic principles like the peaceful uses of outer space and incorporated the elements of PAROS. For instance, the 1963 Partial Test Ban Treaty prohibits nuclear weapons tests and nuclear explosions in outer space, and the 1967 Outer Space Treaty bans the stationing of nuclear weapons or other weapons of mass destruction (WMD) in outer space by the States Parties to the Treaty.

This legal regime, which is conducive to preventing the deployment of WMD as well as the conduct of other military activities in outer space, has played an important role in ensuring the peaceful nature of outer space. However, these instruments have neither banned the deployment of weapons other than WMD in outer space, nor can they effectively prevent the threat or use of force against outer space objects. With such obvious loopholes in preventing the weaponization of outer space, these instruments can no longer meet the current and long term needs of maintaining security in outer space.

In this context, starting from 1981, the General Assembly has adopted, on a yearly basis and by overwhelming majorities, resolutions calling on the Conference of Disarmament to negotiate a new international legal instrument on PAROS, with the view to filling the gap in the existing legal instruments on outer space and fundamentally addressing the immediate risks of an arms race and threats of weaponization in outer space. To this end, China and Russia jointly submitted a draft treaty on the prevention of the placement of weapons in outer space and of the threat or use of force against outer space objects (PPWT) to the Conference in 2008, and an updated text in 2014, which has provided a sound basis for future negotiations on an arms control treaty for outer space. As proposed by China and Russia, the United Nations established a Group of Governmental Experts on PAROS in 2018 to conduct in depth and substantive discussions on the substantial elements of an international legally binding instrument.

Unfortunately, a certain superpower, unwilling to subject the development of its military capabilities in outer space to any substantive constraint, has long stood in the way of the outer space arms control process. It has totally rejected the PPWT text proposed by China and Russia on technical grounds, and even single handedly

blocked the adoption of a report by the United Nations Group of Governmental Experts on PAROS, thus bringing international efforts in that regard to a standstill.

Transparency and confidence building measures (TCBMs): In an important step toward PAROS, the international community has made some progress on TCBMs. In 2013, the Group of Governmental Experts on TCBMs in Outer Space Activities adopted a report proposing a series of voluntary measures such as transparency of outer space policies, notifications of outer space activities, and the exchange of visits to space facilities. In 2019, the United Nations Office for Outer Space Affairs adopted the Guidelines for the Long term Sustainability of Outer Space Activities, which laid out specific provisions on focal points, space conjunction assessments, space debris and the registration of space objects.

These TCBMs play a positive role in preventing an arms race in outer space, but are implemented on a voluntary basis and are not legally binding. They cannot effectively define the legal boundaries of military activities in space, or fundamentally restrain such activities as conducted by some countries, nor can they promptly and effectively respond to threats of the weaponization of and an arms race in outer space. Therefore, the TCBMs can only serve as a supplement to international legally binding instruments, but cannot replace the negotiations on legally binding instruments on PAROS.

III. Further safeguarding measures that can be taken by the international community

Under the current circumstances of outer space security, the international community needs to strengthen its situational assessment, locate the root causes of problems, strengthen international cooperation, and adopt a multi-pronged approach in order to provide effective guarantees for preventing an arms race in outer space and preserving outer space for peaceful purposes. China believes that the international community could take the following additional measures:

First, embrace a vision of common, comprehensive, cooperative and sustainable global security. All countries should uphold the concept of building a community with a shared future for humanity, and work together to make outer space a new frontier for win win cooperation, not a new battlefield for competition and confrontation. The country with the most powerful space capability should earnestly assume its special responsibilities, abandon the unilateral approach of seeking absolute advantage, absolute freedom and absolute security in outer space, and change the security strategy that puts the security of a certain country or bloc over that of other countries.

Second, persist in advancing negotiations on an international legally binding instrument on outer space arms control. We need to actively support the Conference on Disarmament in carrying out the relevant work immediately. Before formally launching negotiations, a technical expert group could be established to conduct in depth discussions on such technical issues as the definition, scope and verification of a future legally binding instrument on outer space arms control. A Group of Governmental Experts on PAROS could be re-established to further refine and improve the existing consensus and outcomes, and make full preparations for negotiations on a legal instrument on arms control in outer space. The parties could carry out discussions on the Chinese and Russian draft PPWT treaty and give their constructive opinions in light of new situations and developments so as to lay the foundation for the text of the future instrument.

Third, complement the process with appropriate TCBMs. While focusing on the ultimate goal of negotiating an international legally binding instrument on outer space arms control, countries also need to strengthen dialogue and communication,

continuously bridge differences and broaden consensus, and explore appropriate and feasible TCBMs. Countries should take concrete steps to avoid drawing ideological lines or overstretching the concept of national security, and remove intentionally created scientific and technical obstacles.

Fourth, regulate the participation of commercial space enterprises in outer space military activities. The large scale participation of some commercial space institutions in military space activities has objectively accelerated the expansion of armaments in outer space and blurred the boundary between military and civilian activities. Countries should strictly abide by the Outer Space Treaty (1967), intensify their national regulatory responsibilities and strengthen the supervision and management of commercial space activities in their countries to avoid accidents and abnormal actions that may exacerbate confrontations and conflicts in outer space. Moreover, they should constrain their commercial space enterprises to make proper use of telecommunication frequency and orbital resources in outer space so as not to infringe upon the rights of developing countries to the peaceful use of outer space.

China kindly requests the Secretary General to take the position of China into account in his substantive report pursuant to operative paragraph 7 of General Assembly resolution 76/230 of 24 December 2021 and to include this document as an annex to his report.

Cuba

[Original: Spanish]
[22 April 2022]

Outer space should be explored and used for the benefit of all peoples, irrespective of the degree of their economic or scientific development, as space is a common good of humanity that should be used exclusively for peaceful purposes, without discrimination.

The placement of weapons in and the militarization of outer space, together with the continuous development and improvement of such weapons, are serious threats.

There exists a common responsibility to prevent outer space from becoming a theatre of war; that would not only permanently destroy the promising future of space applications as drivers of the sustainable development of the human species, but would also jeopardize the very existence of that species.

Existing disarmament and arms control agreements with an impact on space-related activities, including bilateral agreements, must be strictly observed.

The current legal regime applicable to outer space does not by itself guarantee the prevention of an arms race in outer space. It is therefore necessary to consolidate and reinforce that regime.

The establishment of non-binding norms should only be an intermediate step towards the adoption of a legal instrument.

One example of a practical measure is the conclusion of a multilateral treaty to prevent an arms race in outer space and prohibit the placement and use of weapons in outer space. The adoption of such a treaty should be a priority for the international community. The draft treaty submitted by Russia and China to the Conference on Disarmament in 2014 could be a sound basis for the initiation of negotiations in that regard.

We reaffirm our staunch commitment to not be the first to place weapons in outer space. That commitment is a useful confidence-building measure for preventing an arms race in outer space.

Initiatives to promote cooperation and assistance relating to outer space must be strengthened, and countries that are more advanced in the use of space-based technology must provide support to developing countries.

Exchanges, technical assistance, technology transfer and the peaceful use of outer space for the economic and social development of all nations must be promoted. We reject the imposition of unilateral coercive measures and political manipulation, as they hinder such development.

France

[Original: French]
[6 May 2022]

In the resolution entitled “Further practical measures for the prevention of an arms race in outer space”, introduced in the First Committee of the United Nations, States are asked to submit proposals concerning “guarantees for the prevention of an arms race in outer space and preserving outer space for peaceful purposes”.

France, like several other States, voted against General Assembly resolution 76/230, proposed by Russia, because it is not consistent with the destabilizing behaviours and activities carried out by Russia in space, as confirmed by the Russian anti-satellite launch in November 2021. However, France fully supports the international discussions under way within the framework of the United Nations aimed at concretely improving space security for all actors, including through the establishment of norms, rules and principles of responsible behaviours in space.

The agenda item entitled “Prevention of an arms race in outer space” is addressed by the Conference on Disarmament, following the establishment of an ad hoc committee on the prevention of an arms race in outer space pursuant to a General Assembly resolution in 1982. The concept of “limiting the arms race” in space emerged at that time, in the very specific context of the Cold War, when improving collective security was essentially viewed in terms of “arms control”. That was, for example, the case regarding nuclear weapons with the Interim Agreement between the United States of America and the Union of Soviet Socialist Republics on Certain Measures with Respect to the Limitation of Strategic Offensive Arms, the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Strategic Offensive Arms, the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Reduction and Limitation of Strategic Offensive Arms, the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems and the Treaty between the United States of America and the Union of Soviet Socialist Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles. It was that assumption that led to the introduction of an agenda item entitled “Prevention of an arms race in outer space”. However, from the outset, the committee has given broad consideration to many aspects of space security, including the security environment, proposals related to the existing agreements on space activities and new proposals for improving space security.

Today, in view of the developments in the space domain, the highly dual-use nature of the space environment and capabilities, and the security issues, the agenda item entitled “Prevention of an arms race in outer space” should be understood in broad terms and should include all threatening and destabilizing threats and behaviours. That should make it possible to discuss all means of ensuring, increasing or maintaining space security and decreasing tensions, rivalries and the risks of confrontation in space.

I. A deteriorating strategic context in which space threats are increasingly present

The strategic context has deteriorated, with increased military competition in all areas, including in space, which is particularly suited to the deployment of hybrid strategies below the threshold of conflict owing to the highly dual-use nature of the environment and the capabilities. The return to the logic and strategies of power, the multiplication of behaviours that are threatening or destabilizing and even a concern for security and safety in space, such as anti-satellite launches, challenges to the security and arms control architecture, in particular through exceptionally serious violations of the fundamental rules and principles of the Charter of the United Nations, the continued existence of proliferation crises (Iran, North Korea) and the recourse to space programmes in order to improve ballistic programmes, in violation of Security Council resolutions, are contributing to this deterioration in the strategic environment, which also extends to space.

Anti-satellite launches, most recently carried out by Russia in November 2021, hostile proximity manoeuvres and pre-eminence strategies reflect this heightened strategic competition and may increase the risk of misunderstanding, be destabilizing and lead to growing tensions in space.

The deteriorating strategic context is particularly problematic because States are increasingly dependent on the space environment for their economies and societies and for their defence interests, which may make them more vulnerable. They are therefore seeking to develop new tools and capabilities to reduce those dependencies and vulnerabilities. Conversely, some States are far less dependent on the space environment, and this asymmetry could encourage them to develop intimidation or sabotage strategies in space, with little concern for the viability of space activities or the sustainable use of orbits.

At the same time, the risk of misunderstanding and miscalculations in space is increasing significantly. The volume of objects in orbit in the space environment is rising considerably: there are around 5,000 active satellites in space today. As well as presenting a greater risk of collisions, the rising density of the population of space objects in certain orbits is increasing the likelihood of interference between satellites and the risk of misunderstanding or miscalculations/misperceptions concerning intentional and unintentional interference. In addition to active satellites, there are currently about 900,000 pieces of debris larger than 1 cm in space, which can neutralize or even completely destroy an active satellite in a collision – and create thousands of pieces of debris in the process. Lastly, the development of “new space” and new activities in orbit, such as active debris removal and in-orbit servicing, may lead to an increased risk of misunderstanding, insofar as they may be mistaken for hostile or threatening activities (rendezvous or proximity manoeuvres for the purposes of intelligence collection, sabotage or destruction of a satellite), in the context of a congested space environment.

Space is a domain in which systems are largely dual-use and knowledge of the environment is inherently difficult. It is therefore difficult to mechanically apply exactly the same logic as that which prevailed in the 1990s in respect of the major arms-control agreements, in the case of nuclear weapons, for example. The difficulty of distinguishing between civilian and military space objects is contributing to increased uncertainty and instability. Similarly, as in other domains such as cyberspace, the difficulty of monitoring and attributing certain activities creates a significant risk of misinterpretation and misunderstanding and makes the implementation of a verification regime, while necessary, more difficult. In practice, it is extremely difficult, even for major space powers, to detect all space events, predict the risks and threats that they may face and determine whether a particular action is aggressive or benign. For example, at first glance, it is difficult to distinguish

an innocuous manoeuvre of a satellite, related to its mission, that leads to an accidental collision or jamming, from a manoeuvre aimed at intentionally causing harm. This difficulty, which is compounded by the highly dual-use nature of the space environment, poses a significant risk of an uncontrolled escalation or outbreak of a conflict in space. The concept of "behaviours" seems to be much more relevant to improving space security in general than the concept of "prevention of an arms race"

II.

It is important and valuable to establish instruments that ensure the peaceful use of, and free access to, space by all, and that limit the risks of destabilization and conflict in space. Despite previous efforts in the context of the Conference on Disarmament and the Group of Governmental Experts on Further Practical Measures for the Prevention of an Arms Race in Outer Space, the proposals put forward did not meet consensus and could not be decided on, resulting in a deadlock. It is therefore essential to develop a new and inclusive strategy designed to improve space security concretely, pragmatically and immediately, and to reduce the threats and risks of misunderstanding in space.

In that connection, a capabilities-based approach aimed at prohibiting certain systems does not seem appropriate or effective. A large proportion of space assets are now dual-use, making it difficult to distinguish between military and civilian capabilities and between threatening and benign capabilities and, ultimately, to decide which capabilities to prohibit. More broadly, France recalls the challenge of defining what constitutes a weapon in space, as any space object (for example, kamikaze satellites) can be used as a weapon. Certain capabilities that are necessary for ensuring free and viable access to space, such as on-orbit servicing and active debris removal capabilities, can also be used for aggressive purposes.

A behaviour-based approach is the most appropriate way to improve space security pragmatically and immediately, as such an approach will make it possible to reduce the risks of misunderstanding and misconceptions in space.

By establishing guidelines for the conduct of certain activities so that they are not perceived as aggressive, this approach aims to reduce the destabilizing potential of those activities and the risks of conflict and escalation in space. Furthermore, such an approach, which is focused on the effects of behaviour on space systems, the environment or communities, is more sustainable as it is unaffected by future technological developments.

Moreover, this approach is not inconsistent with moving towards a normative approach that prohibits behaviours, for example. In view of the threat to safety and security in space posed by destructive anti-satellite launches and the intentional creation of debris, France has been advocating a norm prohibiting actions that create multiple pieces of long-lived debris since the adoption of its space defence strategy in July 2019.

These behaviour norms would thus not be intended to modify applicable international law such as the Charter of the United Nations, including the right to self-defence. However, they could later serve as a basis for discussions on the establishment of a legally binding treaty, if a consensus was reached and verification mechanisms could be established.

III. Safeguards to improve space security in a pragmatic and concrete way

With its partners, France is therefore proposing the establishment of pragmatic, immediately applicable and non-legally binding norms that would constitute the first step to improving space security. Such norms would make it possible to define, at the

international level, the behaviours that are considered responsible or irresponsible and threatening or non-threatening by States, and thus to improve the predictability of reactions to certain activities in space. These norms would thus not be intended to modify applicable international law such as the Charter of the United Nations, including the right to self-defence. The establishment of such norms, however, would also help to create a preliminary consensus within the international community, which could be a first step towards a legally binding instrument when the strategic context allows it and if essential conditions such as verifiability are met.

The norms proposed by France relate to three categories of behaviour:

(a) intentional behaviours with a potentially significant impact on the space environment; (b) behaviours that present a risk of misunderstanding; and (c) behaviours potentially affecting the security of persons and property.

(a) Norms relating to intentional behaviours with a potentially significant impact on the space environment

France is in favour of adopting two such norms:

1. States should refrain from intentionally or knowingly creating multiple pieces of long-lived debris.

2. States should avoid and, in any case, minimize the intentional creation of debris.

(b) Norms relating to behaviours that present a high risk of misunderstanding and could be addressed through confidence-building and transparency measures

As the number of rendezvous operations and proximity manoeuvres is likely to increase, this issue must be addressed as a matter of priority in order to reduce the risk of misunderstanding and misconceptions in space and to leverage the opportunities provided by the associated capabilities (for example, on-orbit servicing and active debris removal).

Rendezvous operations, including active debris removal, pose a high risk to the space objects being approached. When consent has not been obtained for a rendezvous operation, such an operation may, under certain circumstances, be interpreted by the targeted State as an attack aimed at destroying or causing the loss of control of the space object being approached or inspected.

Therefore, France considers that such operations should be subject to the prior and explicit consent of the relevant State.

The establishment of norms relating to proximity manoeuvres could also be considered, although such manoeuvres are more difficult to regulate than rendezvous operations.

(c) Behaviours potentially affecting the security of persons and property

France is in favour of establishing guidelines for two particularly dangerous types of behaviour that disturb space objects: behaviours potentially leading to the irreversible loss of control or functionality of a space object; and behaviours potentially affecting the security of persons and property.

(d) Other confidence-building and transparency measures designed to ensure an optimal, more responsible use of space

States could be expected to take the following measures:

– Share orbital data catalogues transparently. This would be a prerequisite for implementing a proximity manoeuvre notification system, avoiding in-orbit

collisions and enhancing awareness of the destruction and loss of control of space objects.

– Adopt and implement appropriate measures to ensure that national non-State space actors adopt these responsible behaviours. States should not knowingly allow space objects under their jurisdiction to engage in irresponsible or threatening behaviours, and should not allow their territories or facilities to be used for engaging in such behaviours against space objects.

– As a confidence-building measure, consider and promote the signature of, ratification of and accession to relevant treaties.

– As a transparency measure, States should publicly share information about their space doctrines, policies and strategies, including in relevant forums such as the Conference on Disarmament.

– Lastly, as in other domains that are not space-related, States should establish bilateral or multilateral systems of points of contact and consultation and deconfliction mechanisms in order to reduce the risk of escalation and conflict in space.

Germany

[5 May 2022]

General Assembly Resolution 76/230 on "Prevention of an arms race in outer space: further practical measures for the prevention of an arms race in outer space" requests the Secretary General to seek "the views and proposals of Member States about the provision of guarantees for the prevention of an arms race in outer space" and to submit a substantive report to the General Assembly at its upcoming session. This paper represents the national contribution by Germany on its views on preventing an arms race and on mitigating threats and security risks in outer space.

1. Introduction: Guarantees are inadequate for the prevention of arms races

Legally binding instruments, political commitments, norms of behaviours as well as transparency and confidence building measures are core instruments for arms control and risk reduction in many domains. They complement each other by serving specific purposes. They are most effective if they form a verifiable fabric of obligations, state practice, and voluntary measures underpinned by good intentions. Singling out or limiting approaches to guarantees will not be sufficient to foster security, particularly not in outer space, where guarantees will be difficult to define and verify. It is rather a comprehensive and pragmatic approach we need towards outer space security.

At worst, calls for guarantees may provide cover for fraught intentions. The Russian Federation has for many years called for guarantees to prevent an arms race in outer space – yet its aggression against Ukraine is a case of the most blatant disregards for political commitments Russia itself has made. We see Russia's stated aims in clear contradiction with Russia's current aggressive actions in Ukraine, bluntly breaching the security guarantees Russia gave to Ukraine according to the Budapest Memorandum and shattering peace in Europe, gravely breaking international law and damaging the foundation of the European security architecture. Breaching international agreements and fundamental international law is a huge driver for instability, insecurity and arms races. It destroys trust and confidence in international agreements and relations, and increases unpredictability and the risk of miscalculation, escalation and conflict.

Russia's breach of International Law and past commitments has also a profound negative impact on disarmament, arms control and non-proliferation. However, progress is needed today more than ever, including outer space security.

A broader approach towards PAROS

2.

Germany remains strongly committed to enhancing security in outer space and to preventing an arms race in outer space. Outer space must remain a peaceful, safe, stable, secure and sustainable environment for the benefit of humankind.

States around the globe become more and more dependent on space assets for their prosperity, safety and security. Conflict in outer space would not only affect the states involved in the conflict: The consequences of the loss of space-based services would be immense and the space debris resulting from conflict would likely harm numerous states not party to the conflict. Progress on space sustainability and security is needed more than ever. This requires a multilateral, inclusive process.

The traditional notion of "preventing an arms race in outer space" dates back to the bipolar great power competition between the United States and the Soviet Union during the Cold War and builds on the idea of an arms race taking place between great powers. Today, outer space security is an essential security issue for all states, not just for great powers or space-faring nations. We should therefore broaden our scope and discuss and negotiate measures to increase stability and predictability and to foster transparency and confidence in outer space in order to create conditions where risk of escalation and conflict in space are mitigated and states have no incentive for contesting outer space or engaging in arms races.

Secondly, fulfilling the mandate of PAROS is not restricted to taking "measures to prevent for all time the placement of weapons in outer space" as proposed in resolution 76/230. The report of the Secretary-General on Reducing space threats through norms, rules and principles of responsible behaviours of 13 July 2021 as well as the debates at the PAROS Group of Governmental Experts in 2018/19 concluded that the international community is facing a broad spectrum of space-related threats, emanating from space as well as from Earth. Furthermore, threats are not limited to the kinetic destruction of space objects, but include means of electronic warfare, cyberattacks and so on. Finally, space security is challenged by an inherent dual nature of space technologies giving rise to ambiguities of their intended uses: Capabilities and technologies that are essential for preserving the free and sustainable use of outer space might also be misused with the aim to destroy or impair space assets of others1. In view of such dual-use concerns, threats in outer space cannot be deduced from objects or capabilities alone, but from a combination of capabilities and behaviour or from the observation of actual actions, operations and activities.

Behind this background, we do not believe that the Russian/Chinese draft treaty on the prevention of the placement of weapons in outer space and of the threat or use of force against outer space objects referred to in resolution 76/230 adequately responds to the objective of strengthening trust and confidence between States, increasing security and preventing an arms race in outer space.

Firstly, it only covers space-based systems. Ground-based counter-space capabilities – like the Nudol-missile used in Russia's irresponsible 2021 ASAT-test – but also means of electronic warfare or cyberattacks which constitute significant and serious threats to space systems and the space environment, are not explicitly included in the scope of the treaty. It also cannot address risks emanating from the dual-use

[1] For examples see German national contribution to the Secretary-General in reference to General Assembly resolution 75/36 on norms, rules and principles of responsible behaviours in outer space (page 6) in the attachment.

nature of space systems. Ambiguities regarding the capabilities of certain objects and regarding intentions of their use could lead to misinterpretations, misunderstandings and miscalculations and could consequently increase the risk of conflict in space.

Secondly, the draft treaty on the prevention of the placement of weapons in outer space and of the threat or use of force against outer space objects has no workable definition of a space weapon and no verification measures.

Thirdly, Russia and China have failed to reconcile their approach with the fact that they – despite claiming to promote the prevention of an arms race in outer space – already possess and continue to develop and test counter-space capabilities, including on-orbit systems. Cases in point are the latest DA-ASAT test of Russia from 15 November 2021, the Russian satellite Cosmos 2543 releasing a projectile-like object in July 2020 and Chinese satellite SJ-21's close proximity operation in January 2022 – combined with intransparency about the function and intent behind these missions. These capabilities and behaviours constitute significant and serious threats to space systems and the space environment but are not explicitly included in the scope of Resolution 76/230. In particular the direct ascent anti-satellite test of Russia using a Nudol-missile against one of its own defunct satellites (Cosmos-1408) on 15 November 2021, creating more than 1,500 pieces of trackable debris and thereby also endangering human spaceflight on-board the International Space Station, constitutes a reckless and irresponsible behaviour.

Developing, testing and fielding counter-space capabilities, which are not in line with a defensive posture, trigger threat perceptions that may result in misunderstanding, miscalculation and escalation spirals as well as an accelerated arms race.

We therefore believe the approach in the draft treaty on the prevention of the placement of weapons in outer space and of the threat or use of force against outer space objects is neither feasible nor adequate for preventing an arms race in outer space.

3. How to enhance security and confidence in outer space?

Taking into account that threats in outer space cannot be deduced from objects or capabilities alone, but from a combination of capabilities and behaviour, we believe the most pragmatic and realistic way to increase security and to prevent misperception and miscalculations at this point in time is to agree upon norms, rules and principles of responsible behaviours and to increase transparency and predictability of space activities. Behaving responsibly in outer space includes – in addition to cooperative means such as increased communication, consultation, information exchange and transparency – refraining from actions, operations and activities posing a threat to security and stability or that might easily be misperceived as one.

We therefore call on all states to constructively engage in the incremental and inclusive process offered by the open-ended working group on reducing space threats through norms, rules and principles of responsible behaviours which will start its work in May 2022. Our goal remains an increased shared understanding and awareness of threats and security risks related to outer space and an actual agreement on and implementation of rules of responsible behaviour. We would like to refer to the German national contribution to the Secretary-General in reference to General Assembly resolution 75/36 on norms, rules and principles of responsible behaviours in outer space in the attachment for more detail.

Ultimately, this might help building trust to then take more ambitious steps potentially leading to a comprehensive, effective and verifiable legally-binding instrument designed to cover the relevant threats related to outer space.

Honduras

[Original: Spanish]
[29 March 2022]

With regard to the request from the Office for Disarmament Affairs addressed to Member States concerning compliance with General Assembly resolution 76/230, relating to the agenda item "Prevention of an arms race in outer space: further practical measures for the prevention of an arms race in outer space", the Government of Honduras sets out its views below.

The use of outer space must be subject to regulations, as set out in an international legal instrument governing the acts and activities of all interested parties, in order to prevent an arms race in space. Outer space should be used solely for peaceful purposes and for the benefit of humankind.

Japan

[4 May 2022]

Today, all states are reliant on space systems for peace and prosperity on Earth. As such, space security, which underpins the safe operation of space systems, is of utmost importance for all, and the prevention of an arms race in outer space (PAROS) is crucial in achieving space security. Since space systems provide fundamental services for our daily life, such as satellite communication and positioning, navigation and timing, as well as their critical application including air and maritime traffic management, interference with those services could lead to enormous economic loss, serious social disorder, and, in extreme cases, loss of lives. The increasing number of both state and non-state space actors and the diversification of their activities raise potential risks of misunderstanding and miscalculation, which could escalate tension and entail conflict. From an arms control perspective, space systems play an essential role in deterrence and strategic stability as they are used in, for example, missile warning, nuclear command and control), and verification of arms control instruments. Further, the development and deployment of counterspace capabilities as well as insufficient transparency regarding doctrines, policies, and activities, are calling for the attention of all states.

PAROS requires a different approach from that of traditional arms control due to unique features of space domain. In particular, outer space is a domain where even innovative technologies developed with benign intention may, if used inappropriately, pose a serious threat due to their dual-use nature. In turn, this dual-use nature brings complexity to verification, which is one of the essential components of all arms control instruments, and poses difficult challenges in identifying space threats through focusing solely on objects or their technological capabilities.

Against this backdrop, there is a pressing need to deepen understanding on the state of play of space security and to develop common understanding at the international level regarding practical ways to ensure and enable peaceful, stable, secure, and sustainable use of space systems from a security perspective. Japan believes that such undertakings should focus on patterns of behaviours and be informed by current practices and existing legal frameworks, including the Outer Space Treaty and other relevant legal instruments, which they themselves have developed over time, emanating from various non-legally binding norms. Japan considers that such efforts to deepen and develop these understandings would directly contribute to addressing the aforementioned challenges and preventing an arms race in outer space.

As a way to achieve PAROS, Japan underscores the importance of transparency and confidence-building measures. For example, frameworks such as The Hague Code of Conduct against Ballistic Missile Proliferation have made an important contribution to enhance transparency and confidence-building in launch activities through concrete implementation by subscribing states. Japan considers that transparency and confidence-building measures, especially the recommendations of the 2013 Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities.

Japan is of the view that the open-ended working group on reducing space threats through norms, rules and principles of responsible behaviours provides an important and inclusive opportunity for the international community to pursue these efforts, which mitigates threats through reducing risks of misunderstanding and miscalculation and contributes to PAROS.

Netherlands

[28 April 2022]

Introduction

Space technology is present all over our planet in numerous and often critical economic, social, scientific and security-related applications. Every day, civilian and military parties make large-scale use, both directly and indirectly, of satellites and related infrastructure for communication, navigation and earth observation. Satellites that transmit positioning and timing data are part of critical infrastructure, and we can no longer imagine our “smart” world without reliable weather forecasts, digital payments or track & trace systems in logistics. Space is also a crucial domain for military command and control, communication with deployed units, the use of precision guided munitions, and intelligence analyses based on satellite imagery. Operating in this domain, both for civil and military purposes, goes hand in hand with vulnerabilities for all states, including those that do not actively operate in space.

In recent years, the space domain has become increasingly congested and contested. More and more countries are developing capabilities with which they can limit or even deny other users’ access to space assets. Also, sophisticated technological advances largely originate in the private sector and a range of private actors are increasing and expanding their activities in space. Hence, differentiating between civilian and military usage of space is becoming increasingly complex. The nature of the space domain together with the technological sophistication and dual-use technologies blur the lines between offensive and defence usage of space. Although this division is based on doctrinal choices and intent, practical measures such as multilateral cooperation, transparency, and clear and direct communication are instrumental in preventing an arms race in outer space.

Preventing an arms race in outer space

To prevent such an arms race in outer space, it is important that the international community continues the multilateral discussion about PAROS and related further practical measures. Hence, the Netherlands supports General Assembly resolution 76/230, as well as resolution 76/55 on transparency and confidence-building measures in outer space activities that can further contribute to the overall goal of PAROS.

As indicated in the introduction, the increasing number of activities in space create new vulnerabilities that can lead to major disruptions in economic, social and security terms. These apply to all states and thus entail a joint responsibility to address these and mitigate contemporary threats. Space cannot be claimed at a national level

and no country can operate independently in outer space without affecting others. Hence, establishing a shared vision on this theme is more important than ever. In this context, the Netherlands emphasizes potential practical measures such as increased transparency, direct lines of communication, and a focus on confidence building measures, such as delivered in 2013 by the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities, to minimize the risk of miscommunication, misinterpretation and inadvertent escalation in the space domain. Moreover, the Netherlands published a translation of our national space security policy and supported the publication of an unclassified version of NATO's space policy. Such practical measures are even more important than ever given the current security environment. Multilateral engagement in fora such as the Conference on Disarmament and the recently established open-ended working group on reducing space threats through norms, rules and principles of responsible behaviours, but also related instruments such as The Hague Code of Conduct against Ballistic Missile Proliferation, can bring such measures to further fruition.

Militarization versus weaponization of space

The Netherlands recognizes the importance of space for military operations within the applicable existing international frameworks. Such military operations can take various forms: military activities can be conducted from, in, through and towards outer space. As a state party to the five United Nations treaties on outer space, the Netherlands stresses that the use of outer space should be peaceful and that no weapons of mass destruction should be placed in orbit, around Earth or on any celestial body.

Given the dual-use character of current sophisticated space technologies, the absence of a broadly supported definition of a space weapon, and the increasing difficulty to differentiate between the offensive and defensive character of space technologies, the Netherlands makes a clear distinction between the legitimate military use of space in a responsible manner, and the weaponization of space that the Netherlands clearly opposes in the discussion.

Towards a robust system

In our view, the current situation shows that the existing system of space governance is not yet sufficiently robust to guarantee unrestricted access to space systems by all states, now and for future generations. We believe that improvements should be based on further development of regimes concerning the safe, secure, and sustainable use of outer space and on behaviour and its consequences.

Although resolution 76/230 focuses on the "guaranteed prevention of an arms race", in our view such a guaranteed prevention in practice proves challenging to achieve. It remains unclear as well how the provision of such guarantees should be further structured. Hence, it is important that within the framework of this broadly supported resolution, United Nations Member States share their views on the provision of guarantees for the prevention of an arms race in outer space and preserving outer space for peaceful purposes. We believe that transforming those views into a joint vision on this subject will be useful and necessary to continue the international dialogue on this matter and reduce the potential for an arms race in outer space through an inclusive process.

In this context, threats from the ground such as ASAT-systems continue to be a matter of great concern to the Netherlands. These ground-based threats have not yet been included in the draft treaty on the prevention of the placement of weapons in outer space and of the threat or use of force against outer space objects, nor in the proposed political commitment for a "no first placement of weapons in outer space".

This is among the underlying reasons that we cannot support these initiatives in their current form.

However, it is a positive development that ground-based threats have been included in General Assembly resolution 76/230. In this regard, the Netherlands welcomes the recently announced commitment by a United Nations Member State to not conduct destructive direct ascent anti-satellite missile tests. This is a clear example of a practical measure to prevent an arms race in outer space and an act of responsible behaviour in space. In light of recent developments such as the deliberate, and unnecessary, creation of space debris through the intentional destruction of Cosmos-1408 by a direct-ascent anti-satellite missile, this is a timely and constructive step that immediately reduces the threat of force against outer space objects, ahead of further discussions to enshrine this in an eventual legally binding instrument.

The Netherlands continues to endeavour to prevent an arms race in outer space by addressing the vulnerability of space through a step-by-step approach which could lead to further legally binding measures. At the same time, the international community must not lose sight of the continuing developments and their impact on space. The process started by General Assembly resolution 75/36 provides a further forum for all stakeholders in the public and private sectors, as well as NGOs, to come to the table on a voluntary basis, but not without obligations. The international community has already had positive experiences with this approach in other areas, such as cyber activities. The Netherlands is therefore hopeful that lessons drawn from previous initiatives by the international community can further contribute to the success of efforts with regard to the prevention of an arms race in outer space.

Norway

[6 May 2022]

Pursuant to resolution 76/230 the Secretary-General has sought the views and proposals of Member States on the provision of guarantees for the prevention of an arms race in outer space and preserving outer space for peaceful purposes.

Norway is a highly connected society dependent on digital services, where space-based systems are essential for communications, positioning, navigation and timing , as well as situational awareness. Activities outside the Norwegian mainland present challenges where space systems enable efficient and safe operations, support operational security and bolster the exercise of jurisdiction in large areas, e.g., search and rescue operations in the Arctic.

Most states are dependent on space-based services for similar purposes.

Therefore, it remains important to maintain outer space as a peaceful, safe, stable, secure and sustainable environment for the benefit of all. All states must remain committed to the peaceful exploration and use of outer space and to refrain from conducting activities contrary to their obligations under international law, including those that could threaten the ability of all States to freely use and explore outer space, now and in the future.

The deliberations of the first committee of the General Assembly on preventing an arms race in outer space (PAROS) forms one important contribution to this end. It bears noting that the discussions have evolved over time: when the General Assembly adopted the first PAROS resolution (36/97) there was significant emphasis on the prevention of anti-satellite weapons. In later years, resolutions introduced by the Russian Federation have emphasized no first placement of weapons in outer space.

As several other States, Norway understands the concept of PAROS in a broad sense: discussions on PAROS include deliberation on matters of international security

related to space as well as on how to improve space security. This view is in line with the expanding scope of the PAROS agenda in the General Assembly.

Unfortunately, the discussions in PAROS appear to have become entrenched by differing opinions on the form of the desired outcome. Norway believes that the initiative taken in resolution 75/36 on reducing space threats through norms, rules and principles of responsible behaviour offers a promising way forward for PAROS: it offers an approach that addresses space security in a comprehensive and holistic manner without prejudice to the form of the outcome.

In light of the above, Norway considers the "no first placement" approach flawed because it does not address the issue of space security in a sufficiently comprehensive or holistic manner. One reason is that it does not address Earth-based weapons that can target objects in outer space. Furthermore, the initiative lacks a means to verify that a state upholds its commitment not to place weapons in space. Also, the initiative ignores that there already are capabilities in space with all the characteristics of a weapon even if they are not designated as such. Similar considerations apply mutatis mutandis to the draft treaty on the prevention of the placement of weapons in outer space and of the threat or use of force against outer space objects. This proposal does not constitute a sufficient basis for an effective, comprehensive, and verifiable instrument.

Therefore, within the scope of the PAROS agenda of the General Assembly, the issue of guarantees for the prevention of an arms race in outer space and preserving outer space for peaceful purposes must take place within a comprehensive and holistic approach. As such, matters regarding PAROS are currently best addressed within the framework of resolutions 75/36 and 76/231 on reducing space threats through norms, rules and principles of responsible behaviour.

Republic of Korea

[6 May 2022]

Introduction

With more actors, access, and dependency, space is becoming increasingly congested, contested, and competitive every day. Furthermore, as most space systems have dual-use characteristics, it is hard to distinguish the purpose of each space system and the intention behind certain actions. This increases the risk for both miscommunication and miscalculation.

Therefore, all nations, irrespective of their technological status vis-à-vis space, share a clear and urgent need to reduce such threats to ensure a safe, secure, and sustainable space environment as the world is increasingly reliant on space systems and services.

Guarantees for the prevention of an arms race in outer space

Space threats include, but are not limited to, an arms race in space. Indeed, the significant increase of actors, dual-use characteristics of space systems, and risks associated with miscalculation and miscommunication call for a holistic and comprehensive approach to define threats and search for methods to enhance space security. Failure to properly define the challenges that we face would inevitably lead to a failure in response.

In this regard, and while the Republic of Korea remains strongly committed to preventing outer space from becoming an area of conflict, focusing merely on guarantees to prevent an arms race in outer space oversimplifies and underestimates space security issues. Without a common understanding on what constitutes space

threats and responsible behaviours to avoid or prevent such threats, it would be inadequate, and even dangerous, to depend on guarantees especially void of verification mechanisms. Instead, an effective approach in the space security domain would entail, inter alia, appropriate transparency and confidence building measures, norms of behaviours, and political commitments.

In particular, the Republic of Korea also considers that the draft treaty on the prevention of the placement of weapons in outer space and of the threat or use of force against outer space objects does not cover all of the relevant threats. To ensure an effective response, we believe that there is a need for a more comprehensive development of the scope and definition, along with concrete verification mechanisms.

Toward a Holistic and Comprehensive Approach

With a view to the ultimate establishment of an international legal regime that provides for comprehensive measures in response to space threats, the Republic of Korea believes that starting multilateral and inclusive discussions and cooperation centring on a behaviour-based approach is pragmatic, realistic, and appropriate in addressing threats in outer space. Accordingly, the Republic of Korea co-sponsored two UN General Assembly resolutions on reducing space threats through norms, rules, and principles of responsible behaviours (resolutions 75/36 and 76/231), and will actively participate in the upcoming open-ended working group meetings.

The Republic of Korea would like to emphasize the importance of the open-ended working group process, which aims to identify space threats and make recommendations on possible norms, rules, and principles of responsible behaviours based on a common understanding among the United Nations Member States. We encourage all Member States to constructively engage in this process and contribute to enhancing space security and preventing an arms race in outer space.

The Republic of Korea takes this opportunity to express its firm commitment to play its due role along with partner countries to this end, and will continue to be actively engaged in relevant fora.

Russian Federation

[Original: Russian]
[5 May 2022]

The Russian Federation welcomes the adoption of General Assembly resolution 76/230 of 24 December 2021 and, in accordance with paragraphs 7 and 8 thereof, has the honour to submit its national contribution to the report of the Secretary-General to the seventy-seventh session of the General Assembly for further discussion by Member States.

Preventing an arms race in outer space, keeping outer space free of weapons of any kind and preventing it from becoming an arena for armed confrontation require the combined efforts of all States Members of the United Nations. Only collectively can the global community ensure the peaceful exploration of space on an equal and non-discriminatory basis for all countries without exception and resolve many global problems, including those related to economic development.

In recent times, real risks have emerged of outer space becoming a launching pad for aggression and war. A number of United Nations Member States are pursuing a policy that involves placing weapons in space, increasing force capabilities against space objects and using outer space for military purposes. Ambitious programmes are

being implemented to develop weapon systems designed for the threat or use of force in, from or against outer space.

These countries are seeking to use outer space for military operations (both "defensive" and "offensive" operations, including preventive activities) in pursuit of their military supremacy. This is detrimental to international peace and security and could result in severe instability and an arms race in outer space that completely undermines the prospects for arms limitation and reduction in general.

The Russian Federation insists that it is unacceptable to revise the decisions of the first special session of the General Assembly devoted to disarmament, held in 1978 with the aim of encouraging the exploration and use of outer space for strictly peaceful purposes, preventing an arms race in outer space and launching relevant negotiations in accordance with the 1967 Outer Space Treaty. If it is not prevented in time, an arms race in outer space will devour huge material resources, undermine the prospects of arms reduction in general and create insurmountable obstacles to international cooperation in the peaceful exploration of outer space and to the use of the results of scientific and technological progress in that area for peaceful purposes.

In this regard, the Russian Federation welcomes the understanding, enshrined in General Assembly resolution 76/230, that it is the historic responsibility of all States to ensure that the exploration of outer space is carried out exclusively for peaceful purposes. We call on all States Members of the United Nations to implement the tasks set forth in this resolution, first and foremost, to ensure that the complete exclusion of outer space from the arms race and the preservation of outer space for peaceful purposes for the benefit of all humankind become a strict norm of the national policy of States Members of the United Nations and their international commitment. Urgent measures are required to prevent for all time the placement of weapons in outer space and the threat or use of force in space, from space or against space.

It is generally recognized that while the existing international treaties related to outer space and the legal regime provided for therein play a positive role in regulating outer space activities, they are unable to fully prevent an arms race in outer space, the placement of weapons in outer space and the threat or use of force in, from or against outer space, or to preserve outer space for peaceful purposes.

Thus, in order to guarantee the prevention of an arms race in outer space and to fulfil the objectives of the first special session of the General Assembly devoted to disarmament in 1978, the Russian Federation proposes to introduce a complete and comprehensive legally binding prohibition on the placement of weapons of any kind in outer space, and on threat or use of force against and with the use of space objects.

Accordingly, Member States should make the following commitments:

- Not to use space objects as weapons against any targets on Earth, in the air or in outer space
- Not to destroy, damage, disrupt or alter the trajectory of the space objects of other States
- Not to construct, test or deploy space weapons, regardless of where they are based, for any purpose, including for missile defence or as anti-satellite capabilities, for use against targets on Earth or in the air, and to eliminate any such systems already in the possession of States
- Not to test or use inhabited spacecraft for military purposes, including anti-satellite purposes

• Not to assist other States, groups of States or international, intergovernmental or non-governmental organizations, including non-governmental entities established, incorporated or located in territory under their jurisdiction and/or control, in engaging in the above-mentioned activities and not to encourage them to do so.

In order to reliably guarantee the fulfilment of these commitments, they must be agreed upon in the form of a relevant international legally binding instrument. The negotiations to develop one are urgently needed.

To that end, the Russian Federation and the People's Republic of China submitted, for the consideration of the Conference on Disarmament, a draft treaty on prevention of the placement of weapons in outer space and of the threat or use of force against outer space objects in 2008 and its updated version, reflecting the comments and proposals made by a number of States, in 2014.[2] That comprehensive document, which is currently under discussion by the Conference, should form the basis for the elaboration of the legally binding multilateral instrument.

The preparation of such a document would be facilitated by taking into account the work of the Group of Governmental Experts on further practical measures for the prevention of an arms race in outer space, which was active in 2018–2019.[3]

In addition, the document could reaffirm the existing international legal norms and principles governing outer space activities, in particular, the Charter of the United Nations, the Outer Space Treaty of 1967, the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water of 1963, the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space of 1963, the Convention on International Liability for Damage Caused by Space Objects of 1972 and the Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques of 1977.

The initiative and political commitment of no first placement of weapons in outer space, which was put forward by the Russian Federation and has already gained international support, is intended to bring stability while the multilateral instrument is being elaborated. Thirty States have already committed themselves to not be the first to place weapons in outer space.[4]

This political commitment, which is gaining more and more supporters, is the most effective, practical and efficient way to make the development of space strike systems unviable. As one of the transparency and confidence-building measures for the prevention of an arms race in outer space, the initiative on no first placement of weapons in outer space has, in recent years, become a major political factor in strengthening international peace, ensuring equal and indivisible security for all and increasing the predictability and sustainability of the activities of States related to the exploration and use of outer space for peaceful purposes.

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[2] See CD/1985.

[3] Established pursuant to General Assembly resolution 72/250 of 24 December 2017.

[4] Argentina, Armenia, Belarus, Bolivia (Plurinational State of), Brazil, Burundi, Cambodia, Cuba, Ecuador, Guatemala, Indonesia, Kazakhstan, Kyrgyzstan, Myanmar, Nicaragua, Pakistan, the Republic of the Congo, the Russian Federation, Seychelles, Sierra Leone, Sri Lanka, Suriname, Syria, Tajikistan, Togo, Turkmenistan, Uruguay, Uzbekistan, Venezuela (Bolivarian Republic of) and Vietnam.

United Kingdom of Great Britain and Northern Ireland[5]

[6 May 2022]

1. The United Kingdom is pleased to submit the present paper in response to paragraph 7 of General Assembly resolution 76/230, which requested the Secretary-General to seek the views and proposals of Member States on the provision of guarantees for the prevention of an arms race in outer space and preserving outer space for peaceful purposes.

2. Space systems underpin a wide range of scientific and commercial activity and have become a foundational part of the global infrastructure upon which modern life depends. Space systems are also a major part of modern military capabilities. They allow freedom of action; communications; command and control; navigation; intelligence, surveillance and reconnaissance; and ballistic missile launch warning. In considering measures related to the prevention of an arms race in outer space, it is important to take account of the interplay between civilian and military systems and between the space domain and other operational domains (land, sea, air and cyber).

3. The space systems that we rely on include ground-based infrastructure, user equipment and data links as well as satellites. The threats to these 4 segments encompass a wide range of on-Earth and in-orbit capabilities possessed by States that could destroy, inflict damage or interfere with space systems. Given the vital role played by space systems for global prosperity, development and security, it is critical for States to find ways to reduce the risk of miscalculation and escalation so that we can all continue to benefit from space.

4. In the current international climate, characterised by increased state competition and lack of trust, combined with the complex array of threats to space systems, the UK considers the notion of "guarantees" in the context of space security to be unworkable, and potentially counter-productive. We are concerned that it implies a narrow approach focusing only on legally binding Treaties that do not address the modern challenges of space security.

5. PAROS as we know it derives from the final outcome document of the 1978 first special session of the United Nations General Assembly devoted to disarmament,[6] which established the prevention of an arms race in outer space (PAROS) on the agenda of the overall disarmament machinery. This did not prescribe any particular outcome: "In order to prevent an arms race in outer space, further measures should be taken and appropriate international negotiations held in accordance with the spirit of the Outer Space Treaty".

6. To effectively address the PAROS agenda the United Kingdom considers it essential to consider a wider range of measures beyond the call not to place weapons in outer space. The United Kingdom favours a more holistic approach based on defining responsible space behaviours that can help improve mutual understanding and build trust amongst States regarding their space activities, ultimately reducing the risk of conflict arising from misperceptions and miscalculations. The views of the United Kingdom are set out in detail in our submission of 30 April 2021 to the Secretary-General under the General Assembly resolution 75/36 on reducing space threats through norms, rules and principles of responsible behaviour".

7. The United Kingdom acknowledges that there are different views of PAROS – some states have focused their concern on the placement of weapons systems in space. However, in our view it is not possible to address the full range of concerns under the

[5] Full version is available at https://front.un-arm.org/wp-content/uploads/2021/05/national-submission-of-the-United-Kingdom-in-connection-with-resolution-75_36.pdf.

[6] A-S10-4.pdf (un.org).

PAROS agenda without taking into account all the segments of a space system. To prevent an arms race, it is just as important to consider the data that the user gets alongside the satellites that provide it.

8. The United Kingdom considers PAROS to include all threats against space systems. We need to consider the role of new, novel technologies as well as existing ones like missiles, and to include kinetic and non-kinetic threats. We should consider the large range of effects a counter-space capability can have on space systems and on national security rather than considering a ban of certain weapons in isolation.

9. So, we can say that a modern-day space arms race is characterised by complexity, includes ground and space-based components, and encompasses large range of effects. Threats drive the development of defensive systems and overmatching offensive, counter-space capabilities. Correspondingly, the risk of misinterpretation and miscalculation intensifies. An example could be bodyguard satellites where the use of a purely defensive system could appear to be offensive if the bodyguard conducts a defence manoeuvre that destroys, damages or disables another satellite.7

10. In addressing concerns under PAROS, it is also important to take into account threat perceptions; competition between states; misperception of actions and effects; misunderstanding of systems and deployments; absence of functioning arms control regimes; absence of agreed rules, norms and principles including their interpretation and application; incomplete agreements; lack of trust; no verification; and technological developments.

11. How can we address the full range of concerns related to PAROS? The solution to enhanced space security and reducing space threats should include a wide range of mechanisms alongside the actions, omissions and activities of States. A combination of the following measures should be considered as we work towards reducing space threats:

a. Improved understanding of motivations and doctrine

b. understanding of strategic stability

c. dialogue

d. norms, rules and principles including transparency and confidence-building measures

e. risk reduction and crisis management measures/structures

f. Verification

g. Trust

h. Shared understanding of effects and impacts

i. Politically-binding statements

j. Existing foundational international law, including the United Nations Charter, legally-binding instruments and customary international law

k. Sanctions

l. Export controls

[7] Securing Our Military Satellites Against Shadowing Spacecraft – NPEC (npolicy.org).

12. From the 2013 report by the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities (para. 34), we can say that a proposed measure should:

a. Be clear, practical and proven, meaning that both the application and the efficacy of the proposed measure have been demonstrated by one or more actors;

b. Be able to be effectively confirmed by other parties in its application, either independently or collectively;

c. Reduce or even eliminate the causes of mistrust, misunderstanding and miscalculation with regard to the activities and intentions of States.

13. The multi-faceted solution to preventing an arms race in outer space needs to include all elements that would limit the drivers of an arms race; be comprehensive across the whole of space systems; and address all of the technologies that can deliver effects to deny use of the space system.

14. The United Kingdom therefore encourages all Member States to engage in the open-ended working group established by resolution 76/231 to help shape its recommendations on possible norms, rules and principles of responsible behaviours relating to threats by States to space systems.

United States of America

[6 May 2022]

Space activities are essential for the advancement of all humanity and to the prosperity of all States. These activities advance our understanding of the Earth, the universe, and humanity; create good jobs and economic opportunity; inspire us; and drive innovation around the world. Information collected from space capabilities also contributes to international peace and security including by providing data critical to verifying compliance with arms control treaties and by alerting national leaders about evolving threats, such as the build-up of military forces on a country's border.

Because of this, access to and use of space is a vital interest of all States.

However, intensifying strategic competition presents a challenge to international peace and security. This competition is increasing the potential for conflict, including conflict which extends into outer space. Confrontation or conflict in outer space is not inevitable, however. The United States seeks to ensure that outer space remains free from conflict and has long advocated for a comprehensive approach to address issues that could lead to conflict in outer space, including all issues related to the prevention of an arms race in outer space.

A comprehensive approach to the prevention of conflict in outer space, including issues related to the prevention of an arms race in outer space, involves: compliance with and full implementation of the existing international legal regime, including relevant agreements, reviewing existing and future counterspace threats, including examining the overarching international security environment; and then developing a comprehensive, step-by-step approach that includes: the pursuit of voluntary commitments related to norms of responsible behaviour and other transparency and confidence building measures for national security space activities, and also potentially considering concepts and proposals for new legally-binding agreements that are equitable and effectively verifiable; and examining other measures that are available to states that could help maintain international peace and security.

Relevant international agreements

The United States recognizes that legally-binding measures play an important role in addressing issues related to the prevention of an arms race in outer space, and has long been a leader in advancing arms control measures related to outer space. Further, it is clear that international law applies to activities in outer space. Respect for international law, as well as compliance with existing international legal obligations, are core components of a comprehensive approach to preventing conflict in outer space.

Some examples of international agreements that are relevant for outer space activities include:

- The Charter of United Nations
- The Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space, and Under Water (Limited Test Ban Treaty)
- The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (Outer Space Treaty)
- The Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (Rescue Agreement)
- The Convention on International Liability for Damage Caused by Space Objects (Liability Convention)
- The Convention on Registration of Objects Launched into Outer Space (Registration Convention)
- The Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques (EnMod)
- The New Strategic Arms Reduction Treaty (New START/Start III)

Some examples of international agreements that are relevant to outer space activities, which are no longer in force or have not yet entered into force, include:

- The Strategic Arms Reduction Treaty (START I) (not in force)
- The Comprehensive Nuclear Test Ban Treaty (CTBT) (not in force)

Existing and future threats

The development of counterspace capabilities will drive perceptions, which could lead to misunderstandings, misperceptions and mistrust which could contribute to a conflict occurring in outer space. Some States are developing, operationalizing, and stockpiling a variety of counterspace weapons that could be used to, or have the potential to, deny, disrupt, degrade, or destroy civil, commercial, or national security space capabilities and services. In reviewing measures to prevent conflict in outer space, including issues related to the prevention of an arms race in outer space, Member States should analyse threats to space systems, which include those that could be used to deny or disrupt space services temporarily, while others are designed to permanently degrade or destroy space capabilities. These threats against space systems can generally be divided into four categories: (1) ground-space; (2) space-space; (3) ground-ground; and (4) space-ground. Within these categories, the threats can be described as (1) reversible, which include temporary effects such as interference with radio-frequency signals or dazzling of remote sensing systems, or (2) irreversible, which include measures that degrade or destroy a space system.

At the same time, many space capabilities and technologies could be considered dual-use, i.e., used for both civilian and military applications, which presents both practical and conceptual problems when attempting to identify and respond to potential threats. In analysing concerns regarding dual-use systems, Member States should undertake to avoid in any way restricting the peaceful uses of outer space technology by all countries, including developing countries. The United States notes that dual-use capabilities or military uses of space are not inherently aggressive. This is why norms of behaviour and transparency and confidence-building measures are necessary for building trust between States and avoiding the inherent difficulties in regulating dual-use technologies.

Norms of responsible behaviour/transparency and confidence-building measures (TCBMs)

Existing international law provides a strong framework for the governance of outer space activities. As space activities evolve, however, it is important that the norms, rules, and principles that guide such activities also evolve. In this regard, the United States believes that the development and implementation of norms, rules and principles of responsible behaviour, including through the recently established open-ended working group on this issue, could help to address threats by States to space systems by reducing miscalculation, misperceptions, and mistrust.

In reviewing measures to prevent conflict in outer space, including issues related to the prevention of an arms race in outer space, Member States should consider the 2013 consensus report of the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities, which includes recommendations for transparency and confidence-building measures (2013 Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities).

Moreover, that 2013 Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities noted that Member States may also look to other efforts by multilateral initiatives to strengthen stability and security in outer space in a constructive manner. It specifically referenced the Committee on the Peaceful Uses of Outer Space's development of a set of 21 guidelines for the long-term sustainability of outer space activities, which were subsequently adopted in 2019. The Group of Governmental Experts noted that those guidelines have characteristics similar to those of transparency and confidence-building measures; and that some of them could be considered as potential transparency and confidence-building measures, while other could provide the technical basis for the implementation of transparency and confidence-building measures.

Member States should also recall the criteria for an effective transparency and confidence-building measure contained in the 2013 Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities report. These criteria include:

(a) Be clear, practical, and proven;

(b) Be able to be effectively confirmed by other parties; and

(c) Reduce or even eliminate the causes of mistrust, misunderstanding and miscalculation.

In addition, Member States should consider the Secretary-General's report contained in A/76/77, which provides a consolidated summary of elements from the submissions received from Member States pursuant to General Assembly resolution

75/36, without prejudice to their individual positions. It presents existing and potential threats and security risks to space systems, including those arising from actions, activities or systems in outer space or terrestrially; a characterization of actions and activities, that could be destabilizing or threatening and their potential impact on international security; and ideas on the further development and implementation of norms, rules, and principles of responsible behaviours and on the reduction of the risks of misunderstanding and miscalculations with respect to outer space.

Participation in the open-ended working group on reducing space threats through norms, rules and principles of responsible behaviours pursuant to resolution 76/231 could advance comprehensive measures that could prevent conflict in outer space, including issues related to the prevention of an arms race in outer space.

In furtherance of these efforts, the United States announced on 18 April 2022, our commitment not to conduct destructive direct-ascent anti-satellite missile tests. Creating debris in space through this type of destructive ASAT missile tests is in no-one's interest.

Future arms control measures

With respect to any prospective arms control agreements, the United States recalls the provisions of General Assembly resolution 36/97C which requested that the Committee on Disarmament consider the question of negotiating "effective and verifiable agreements aimed at preventing an arms race in outer space." In this regard the United States reiterates that it will consider proposals and concepts for arms control measures if they are equitable, effectively verifiable, and enhance the national security of the United States and its allies.

The United States will factor into these considerations compliance by other countries with their existing legally-binding treaty obligations. In addition, the United States also emphasizes the importance that any potential future legally binding arms control agreement related to outer space have clear objectives and avoid restrictions on the peaceful exploration and use of outer space.

Other measures

When considering measures that could be taken in order to prevent a conflict from extending into outer space, including issues related to an arms race in outer space, Member States could also consider steps using their domestic authorities related to sanctions and export controls.

Implementing a comprehensive approach

To make progress on these important issues, the United States believes the international community should not be singularly focused on proposals for flawed, unverifiable legally-binding arms control agreements focused solely on the placement of weapons in outer space, without regard to other threats. Preventing conflict from occurring in outer space, including issues related to the prevention of an arms race in outer space, requires a holistic view of competition and conflict between states and an understanding of how and why competition and conflict might extend to outer space. We must expand our approach to take into account additional potential security threats from ground-based systems, such as ground-based anti-satellite systems, that could be tested in a dangerous and irresponsible manner that threaten space systems that are vital to all nations' security, economic, and scientific interests for decades to come.

Instead of following a narrow, flawed approach, the international community should look at all of the tools available. Following a more comprehensive approach, and keeping in mind the importance of full implementation of relevant existing international legal obligations, the international community could then develop further specific, tailored and practical measures to address those threats. In the United States' view, the most practical and effective means to address this urgent issue is to devise appropriate transparency and confidence building measures, and norms, rules and principles of responsible behaviour, which are critical to building trust that pragmatically address the threats, and this may lead, as appropriate, to the development of legally-binding agreements in the future.

B. European Union

[2 May 2022]

Ensuring space security and preventing an arms race in outer space are essential conditions for the further exploration and use of outer space in a safe, sustainable and secure manner and for strengthening international security and stability in the common interest of humankind.

The European Union and its member States regard outer space as a global commons, to be used for the benefit of all. The 1967 Outer Space Treaty and other applicable international law, including the Charter of the United Nations, as well as the guiding principles developed in the United Nations framework, constitute the cornerstone of the global governance of outer space. The European Union and its member States stress the importance of conducting space activities in accordance therewith.

In this regard, the European Union and its member States consider that the Conference on Disarmament remains the world's single multilateral disarmament negotiating body and its continued relevance is of utmost importance for the European Union. The Conference on Disarmament should fulfil its crucial function to negotiate multilateral disarmament instruments and it could also elaborate other voluntary norms.

The notion of "limiting the arms race" in outer space appeared in a particular context of the Cold War in which the improvement of collective security focused at that time mainly on nuclear weapons and was therefore thought through the lens of "arms control". In this context, the item on the prevention of an arms race in outer space" (PAROS) was introduced in the Conference on Disarmament , followed by the creation of an ad hoc committee on PAROS in 1982. However, throughout its mandate, the ad hoc committee had wide-ranging discussions that contributed to clarifying the complexity of the situation, thereby broadening the scope of the discussions and not limiting itself to the idea on "an arms race" in outer space. Therefore, the European and its member States understand the concept of "PAROS" in a broader sense, including all the challenges to international security related to space and all the tools to improve space security.

A strong need to enhance space security

Nowadays, the space environment is becoming increasingly congested, contested and competitive. Outer space is an area where we have seen a considerable amount of challenges to our common security in recent years and this merits our full attention. The destruction of space objects and systems or interruptions of their services significantly impacts and disrupts connected societies which are increasingly dependent on these services. Furthermore, the inherent dual-use nature of many space

objects and systems poses challenges when it comes to identifying threats, distinguishing between innocuous behaviours and potentially threatening ones.

Thus, improving space security today is essential, as all States, independent of the level of the development of space activities, are increasingly reliant on space systems and services. Satellites and other space-based assets, their corresponding ground segments, and their associated signals are vital for the functioning of today's societies and the global economy and trade, as well as for progress on crucial global issues such as combatting climate change and achieving the Sustainable Development Goals. The economy, the security, the daily life of contemporary societies are vulnerable, both in space-faring nations and, more broadly, in all countries increasingly using modern technologies. Against this background, the European Union and its member States underline the need to better tackle the increasing risks and threats that arise from these developments.

Preventing an arms race in outer space and preventing outer space from becoming an area of conflict is crucial to safeguard the long-term use of the space environment for peaceful purposes. The European Union and its member States remain strongly committed to this final objective.
Previous and current initiatives and works

The European Union and its member States appreciate that experts in the Group of Governmental Experts on the Prevention of an Arms Race in Outer Space in 2018 took a comprehensive approach in an effort to build bridges between various positions. Even though the Group of Governmental Experts could not unfortunately reach consensus on a final report, their efforts should contribute to current and future discussions to enhance security in outer space.

Some of the current legally binding instruments proposals for the "prevention of an arms race in outer space" do not provide for any guarantee and will not help enhance space security.

Thus, the European Union and its member States reiterate that the current draft treaty on the prevention of the placement of weapons in outer space, the threat or use of force against outer space objects does not constitute a sufficient basis for an effective, comprehensible and verifiable instrument. In addition, the proponents of the draft treaty have demonstrated that they already possess and that they are developing further capabilities, which are not explicitly included in the scope of the draft treaty but are a real threat, such as anti-satellite ground-based capabilities.

We also believe that the "no first placement of weapons in outer space" initiative does not meet the criteria for the transparency and confidence-building measures, as agreed in the consensus report by the Group of Governmental Experts on Transparency and Confidence-building Measures in Outer Space Activities of 2013. Again, this initiative does not address Earth-based weapons targeting outer space assets. The definitional ambiguity regarding the question of what constitutes a weapon in space will affect all objects placed in space or possessing capability to affect objects in outer space that could in one way or another be considered to be a weapon if used in an aggressive manner. Furthermore, the "no first placement of weapons in outer space" initiative contains no mechanism that would make it possible to effectively verify a State's political commitment "not to be the first to place weapons in outer space".

The European Union and its member States recognize that, while the existing international framework related to outer space and the legal regime provided for therein play a positive role in regulating outer space activities, the above proposals of legally binding instruments are unable to guarantee the prevention of an arms race in

outer space, or to contribute to the enhancement of space security, and to preserve outer space for peaceful purposes for present and future generations.

This is why, without excluding the possibility of a legally binding instrument in the future, the European Union and its member States are convinced that an international and inclusive approach in the United Nations framework based on norms, rules and principles of responsible behaviours is key. We thus need strong political will in safeguarding the peace and security of outer space, concrete implementation of transparency and confidence-building measures, and agreement on principles of responsible behaviours.

Concretely enhance space security through norms, rules and principles of responsible behaviours

First of all, building a common understanding of responsible and irresponsible behaviours is the right approach to increase predictability and to reduce and avoid tensions in outer space. We therefore believe that establishing norms, rules and principles of responsible behaviours in, to, from and through outer space is indispensable.

Furthermore, the European Union and its member States believe that fostering mutual trust and strengthening transparency between States is key to enhance space security and to avoid a conflict in outer space. In this regard, the European Union and its member States consider that publishing and sharing information about space doctrines, policies and strategies is a responsible behaviour and would help creating confidence between different actors. This will help reducing the risks of misperception, miscalculation, and unwanted conflict escalation.

Similarly, the European Union and its member States emphasize the importance of The Hague Code of Conduct as the only multilateral transparency and confidence-building instrument against the proliferation of ballistic missiles that has an obvious overlap to outer space activities. The European Union will continue to promote the universality, full implementation and enhanced functioning of the Code. We call on all States, in particular those with significant activities in the area of ballistic missiles and space launch vehicles, to adhere to the Code as soon as possible.

Finally, the European Union and its member States highlight the need for the international community to come together and discuss further ways and means on how to concretely improve space security in the interest of all States, in a constructive and collaborative way, making use of past and ongoing international discussions. The European Union and its member States emphasize that the only way to prevent an arms race in outer space and preserve outer space for peaceful purposes in a dependent and interconnected world is to strengthen the multilateral order, to bring all stakeholders together in the existing fora in order to enhance cooperation and trust amongst all stakeholders and especially States.

Voluntary commitments, non-legally binding guidelines and principles and legally binding instruments should not be seen as mutually exclusive, as they reinforce each other and both are needed for the prevention of an arms race in outer space, the preservation of a safe, secure and sustainable space environment and the peaceful use of outer space on an equitable and mutually acceptable basis for all, for present and future generations.

Conclusion

The European Union and its member States remain firmly convinced that the most important step forward is to continue the discussions on responsible behaviours. This approach can allow all States to enhance communication and dialogue, to

strengthen transparency and confidence with a view to converging differences and reaching consensus, and creating favourable conditions for possible future negotiations on the prevention of an arms race in outer space.

In this regard, the European Union and its member States continue to support the process launched with General Assembly resolution 75/368 and welcome the adoption of resolution 76/231,9 which is a timely step to contribute to the reduction of threats and risks related to outer space. The establishment of this open-ended working group, which the European Union and its member States fully support, paves the way for a detailed and inclusive discussion on reducing threats through responsible behaviours with a view to concretely improving space security and to contribute to the prevention of an arms race in outer space.

As firm believers in multilateralism with the United Nations at its core, the European Union and its member States strongly believe that now it is urgent and in the interest of all States to pragmatically and immediately improve space security and to act swiftly in order to agree on a global, common and multilateral solution through greater coordination and cooperation, with the involvement of all United Nations Member States and relevant organisations, encouraging in the same time the engagement of commercial actors and civil society representatives, in accordance with established practice.

The European Union and its member States therefore continue to be fully committed to engage actively and constructively in discussions under the item of the prevention of an arms race in outer space.

[8] Reducing space threats through norms, rules and principles of responsible behaviours.
[9] Reducing space threats through norms, rules and principles of responsible behaviours.