

**ADVANCED UNEDITED****Open-ended working group on reducing space threats through norms, rules and principles of responsible behaviours**

Geneva, 9 – 13 May 2022

Item 5 of the agenda

General exchange of views**Responsible behaviours as a practical contribution to the prevention of an arms race in outer space and to strengthening the international frameworks on space security****Submitted by Germany****I. The growing relevance of security in outer space for all States**

1. Space assets and the services they provide underpin our way of life as well as the prosperity, safety and security of all States in an unprecedented manner. Satellite communications provide connectivity across the globe. Navigation on land, at sea and in the air relies on space-based positioning, navigation and timing services (PNT) like GPS, Galileo, Glonass or Beidou. They also enable the synchronisation of energy distribution, international information and telecommunication networks and the global banking system. Earth observation satellites provide data for weather forecasts, land survey, and the monitoring of environmental and climatic changes. In our globalized and integrated world, the reliable and secure provision of space services matters to everyone and all States.

2. Moreover, outer space is of increasing relevance for security. Space-based services, such as satellite communications, PNT services, reconnaissance and early warning are essential for assessing and responding to risks and threats to national security, for crisis management, and for military operations.

3. Germany observes with great concern the development and testing of counter-space capabilities. Due to their high vulnerability and relevance for civilian as well as military activities, space assets of all kind may become targets in future conflicts. Along with real or perceived threats to space systems comes a high risk of misperceptions and unwanted escalation. Agreeing on norms, rules and principles of responsible behaviour will be the first, pragmatic step to mitigate these security risks and threats, increasing predictability and reducing risks of misperceptions, thus contributing to the prevention of conflict. Thereby they contribute directly to preventing an arms race in outer space.

II. The existing international frameworks governing behaviour in outer space

4. International law is of critical importance when dealing with opportunities and challenges related to the use of outer space. In particular, the UN Charter fulfils a core

function with regard to the maintenance of international peace and security also in relation to activities in outer space. In this regard, Germany reemphasizes that international law, including the UN Charter and international humanitarian law (IHL), applies without reservation in the context of outer space.

5. 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 (Outer Space Treaty) constitutes the foundation of the rules based order in outer space. Article III of the Outer Space Treaty provides that States shall carry on activities in the exploration and use of outer space, including the Moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations. The Outer Space Treaty also affirms the principles of cooperation, mutual assistance and due regard to the interests of other States.

6. Article IX of the Outer Space Treaty provides that States parties shall undertake international consultations in advance if they believe that their planned activities would cause potentially harmful interference with the activities of other States parties. The Outer Space Treaty prohibits placing any objects carrying nuclear weapons or other weapons of mass destruction in orbit around the Earth, installing such weapons on celestial bodies, or stationing such weapons in outer space in any other manner. It also prohibits the establishment of military bases, military installations or fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies. Building on the Outer Space Treaty the 1972 United Nations Convention on International Liability for Damage Caused by Space Objects expands the rules for State liability for space objects and the 1976 Convention on Registration of Objects Launched into Outer Space requires States to furnish details about their space objects.

7. The 2002 Hague Code of Conduct against Ballistic Missile Proliferation has made an important contribution to enhanced transparency and confidence building in launch activities.

8. More recently, aspects of safety have become an issue under more active consideration within the international community. Here, significant progress has been made not by the creation of new legally binding instruments but through the adoption of guidelines reflecting best practices and promoting their wider application. The 2007 Space Debris Mitigation Guidelines of the UN Committee on the Peaceful Uses of Outer Space (COPUOS) seek to reduce the creation of space debris and the 2019 Guidelines for the Long-term Sustainability of Outer Space Activities of COPUOS encompass guidance on mutual information exchange, registration of space objects and collision warning. Further efforts are being made towards a framework for space traffic management. They seek to ensure the safety and sustainability of outer space for current and future use. However, they do not specifically address emerging security risks and threats to space systems.

9. The current regulatory and normative framework, essential for space security and safety, is challenged by the threats and risks in and related to outer space and the lack of awareness and State practice. It is also not sufficient for dealing with all threats and security risks in and related to outer space.

III. Responsible behaviour as a pragmatic way to strengthen security in

10. It is in our joint interest to ensure a safe and secure access to and use of space, and a space environment that is sustainable, peaceful, and free from conflict. Security risks and threats to space systems are growing and they challenge the existing international framework. Thus, there is the urgent need to develop new and flexible concepts to strengthen space security.

11. While international law will be the foundation of these efforts, politically binding measures are the most pragmatic, realistic and thus promising way forward at this stage to address the wide range of actions, and activities which may be perceived as threatening or irresponsible and which may give rise to misperceptions, misunderstanding or miscalculation.

12. The wide range of applications or uses of almost all space assets further compound the complexity of this task. The resulting ambiguities lead to a complex dual-use-problem.

Capabilities and technologies that are essential for preserving the free and sustainable use of outer space might also be misused with the aim to impair or even damage or destroy space assets of a potential adversary. Here, we focus on two specific examples:

- Rendez-vous and close proximity operations (RPO) are essential for maintenance, repair, fuelling of spacecraft or docking of space capsules. At the same time they, allow the use of highly manoeuvrable spacecraft not only for the purposes they were designed for but also for potentially damaging other satellites.
- Satellites with robotic arms or other capture mechanisms are currently under development for the active removal of space debris in order to preserve a sustainable outer space environment. At the same time, those mechanisms can manipulate damage or destroy other satellites.

13. More generally, a significant number of space objects can, to a varying degree, be used to target, disable or even destroy objects in space – even when not designed for such purposes originally.

14. In view of such dual-use concerns, threats in outer space cannot be deduced from objects or capabilities alone. Instead, we need to look at a combination of capabilities and behaviours.

15. Traditional arms control approaches, such as prohibiting specific types of objects in outer space, are inadequate for solving the security problem in space.

16. Like on the high seas, risk-reduction requires first and foremost a shared understanding of standards against which to gauge the behaviour of vessels in the vicinity of one's own. Such a shared understanding is needed at the international level and the level of operators. While such standards of behaviour evolved over many centuries in the maritime context, corresponding standards for outer space are not yet developed. The objective of this Open-ended Working Group should be to stimulate the development of such shared standards, in other words principles of responsible behaviour in space. In the maritime context, such behavioural standards formed the basis for the agreements on the prevention of incidents on the high seas concluded by a number of States in Europe and North America, while the code of unplanned encounters at sea developed by States in the Asia-Pacific region offers a non- legally binding approach to address the same security risks.

17. Ultimately, the development of a shared understanding of responsible behaviour in outer space might pave the way for a legally binding instrument designed to cover threats related to outer space in a comprehensive manner. In a first step, we need a common understanding on the security threats and risks and on what constitutes (ir)responsible behaviours, taking into account all our different perspectives. This is a prerequisite to then agree on norms, rules and principles of responsible behaviours, potentially leading to the development of one or several legally binding instruments in mutually beneficial and complementary processes. Voluntary measures have in many instances paved the way to the drafting of new treaties. A particular example in the context of outer space is UNGA Res. 1884 (XVIII) of 17 October 1963 which called upon all States to refrain from placing in orbit nuclear weapons or any other kinds of weapons of mass destructions, which was later enshrined in Article V of the outer space treaty.

18. At this point in time, however, we should begin with a thorough review and analysis of emerging security threats in outer space and formulate our objectives how states should mitigate and prevent negative implications on security in outer space through responsible behaviour. On this basis, we could, as a second step, assess if some of the principles of responsible behaviour in space we aspire to – and if so, which principles – are suitable for a legally binding instrument. In any case, such an instrument would need to be equitable to all States, comprehensive in the threats it addresses (including earth-to-space, space-to-space, space-to-earth), verifiable and effective in terms of reducing space-related security risk. In view of the complexity of security risks in outer space, an effective legally binding instrument can only be a long-term objective and would thus not address the urgent need for improving space security.

IV. Principles of responsible behaviour in relation to international law

19. The development of norms, rules and principles of responsible behaviours in outer space requires an analysis of a wide range of actual and potential threats and security risks to space systems including but not limited to areas such as launches, deliberate creation of debris, space craft manoeuvres, interference (e.g. in the electromagnetic spectrum or cyber domain), coordination and transparency measures as well as international law. As a basis for a successful and truly inclusive process in the OEWG, we need to build a shared knowledge and understanding of space security challenges among all States and among the different relevant communities of technical experts, legal experts and diplomats. Such an endeavour may be a precursor to wider capacity building covering technical, economic, political, regulatory and legal aspects of outer space security.

20. Specifically in relation to international law and the international framework on outer space, Germany sees potential for exploring the following principles:

- Affirm the applicability of international law, including the UN Charter and international humanitarian law (IHL), without reservation to activities in outer space and with a strong commitment to Article III of the Outer Space Treaty.
- Support adherence to, accession to and implementation of relevant instruments, regimes and guidelines, including the Outer Space Treaty, the Liability Convention, the Registration Convention, the Hague Code of Conduct against Ballistic Missile Proliferation, the Transparency and Confidence-Building Measures in Outer Space Activities of 2013 (RES 65/68).
- Promote consultations on the interpretation and state-practice with regard to the implementation of international law in outer space (and in particular on the Outer Space Treaty and the understanding of what constitutes harmful interference).
- Promote exchanges between technical, legal and military experts and political decision makers on space security and related capacity building.
- Promote an exchange on best practices in the cyber, maritime or air domains or the area of telecommunications, which could serve as models for further steps to strengthen the international framework governing activities in outer space.
