Space Law Bootcamp and Preparatory workshop on the OEWG on PAROS in all its aspects

Space Law and Policy

Summary by Dr Almudena Azcárate Ortega

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Space Law

General space law

Space law refers to the legal and normative regime applicable to the outer space environment as well as space-related activities. International space law, much like general international law, comprises a variety of international agreements, treaties, conventions, and United Nations General Assembly resolutions as well as rules and regulations of international organizations.

There are five main international treaties on outer space:

Treaty	**Focus**
Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (1967)	This is the foundational treaty for outer space — outer space's constitution— which establishes the key principles that apply to space activities, and are further developed by other treaties and mechanisms. Some of these key principles established by the OST are the use and exploration of outer space as the "province of all [hu]mankind" and for the benefit of all, freedom of access, prohibition of national appropriation, and responsibility of States for all national space activities, including non-governmental entities.
Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (1968)	This agreement outlines obligations to assist distressed astronauts and safely return them to their launching authority, further developing article V OST. It also addresses the recovery of space objects.
Convention on International Liability for Damage Caused by Space Objects (1972)	This convention defines legal accountability, creating absolute liability for damage on Earth and fault-based liability for incidents in space
Convention on Registration of Objects Launched into Outer Space (1976)	This treaty establishes the obligation to register all objects launched into space at the national level and with the UN to help track orbital assets, further developing article VIII OST.
Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (1984)	This treaty aimss to establish a legal framework for the peaceful, equitable exploration of the Moon and other celestial bodies. It builds upon the OST to prevent lunar militarization, protect the space environment, and ensure that any extracted resources benefit all of humanity.

For more information on general space law, check UNOOSA Space Law.

Law specific to space security

Key legal and normative mechanisms for space security

Lex specialis		
OST	Art. IV	• The only article explicitly addressing arms control concerns. • States shall "undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner." • Prohibits "the establishment of military bases, (…) the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies".
	Arts. I and III	• Both establish the applicability of international law to outer space. • Art. III explicitly establishes the applicability of the Charter of the United Nations to outer space in particular.
Moon Agreement	Art. 3	• Prohibits the use or threat of force or hostile act on the Moon. • Echoes prohibitions of art. IV OST.

Lex generalis		
UN Charter	Art. 2(4)	Prohibition of the use and threat of force.
Arms control mechanisms that explicitly mention space	LTBT	Art. I.1(a) prohibits testing of nuclear weapons "in the atmosphere; beyond its limits, including outer space; or under water, including territorial waters or high seas."
	CTBT	• Art. I establishes that "each State Party undertakes not to carry out any nuclear weapon test explosion or any other nuclear explosion, and to prohibit and prevent any such nuclear explosion at any place under its jurisdiction or control." • The CTBT supersedes the LTBT, but States that have not signed the CTBT or have withdrawn from it, are still subject to the LTBT.
	ENMOD	• Art. I prohibits State Parties from engaging in "military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party." • Art. II extends this prohibition to outer space.
Relevant areas and principles of international law	Air law & law of the sea	• Air law and law of the sea are commonly highlighted as relevant to outer space due to the similarities that exist between these environments. • In particular, the interpretation of the concept of "due regard", which appears in art. IX OST, but is not defined therein, can be facilitated by relying on the law applicable to airspace and the sea. • The concept of "due regard" first appeared in the 1944 Convention on International Civil Aviation, which states that States Parties undertake that State aircraft shall have due regard for the safety of civil aviation. • Art. 87(2) UNCLOS states that high seas freedoms shall be exercised with due regard for the interests of other States.

		• Air law and law of the sea provide important definitional context on the meaning of due regard, thanks to which the international community generally accepts that under it, States are bound to refrain from any acts that might adversely affect the use of a domain by other stakeholders prior to and while conducting activities in that domain.
	Environmental law	• Provides guidance on the interpretation of the principle of the prohibition of harmful contamination enshrined in art. IX OST. • Principle 21 of the 1972 Stockholm Declaration establishes that States have "the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other States or of areas beyond the limits of national jurisdiction."
	IHL	• This area of the law applies in the context of an armed conflict on Earth involving space systems. Were an armed conflict to break out in space —a situation that to this day remains hypothetical— IHL would also be relevant. • IHL principles such as distinction, military necessity, proportionality, and precautions would have to be considered in relation to space systems and activities involved in such an armed conflict. • The applicability of IHL to the space environment does not indicate a legitimisation of war in space. • Certain IHL obligations must also be heeded by States during peacetime, in particular those related to the development of new weapons and methods of warfare.
Non-legally binding mechanisms relevant to outer space	Export control	• Wassenaar Arrangement – seeks to avoid the proliferation of counterspace capabilities by calling on States to disclose and control certain export activities, including those related to space technology, particularly launch vehicles. • MTCR – aims to limit the proliferation of counterspace capabilities among other weapons, by controlling exports of goods and technologies that could contribute to delivery systems (other than crewed aircraft) for Weapon of mass destruction (WMDs).
	Hague Code of Conduct	• Seeks to prevent the concealment of ballistic missiles behind space launch vehicle programmes. • Encourages the adoption of transparency measures such as notifications and disclosure of information regarding ballistic missile and space launch vehicle programmes.
	COPUOS guidelines	• Space Debris Mitigation Guidelines – these guidelines seek to avoid the proliferation of debris, due to its potential to damage space objects. While these guidelines are not focused on security, they are of particular relevance due to the significantly egregious nature of intentional debris creation. • Long Term Sustainability Guidelines – these guidelines are not focused on security issues, but they recommend the implementation of transparency and confidence-building mechanisms, which is also relevant in an arms control setting.

For an overview of space security law see UNIDIR OEWG on reducing space threats (2022) working paper on existing legal and regulatory frameworks → https://docs.un.org/en/A/AC.294/2022/WP.1

Space Policy

Space security vs safety (peaceful uses)

Security	Safety (peaceful uses)
Is concerned with the relationship among space objects and activities, and the maintenance of international peace and security, and disarmament, including the prevention of an arms race in outer space.	Is concerned with ensuring international cooperation in peaceful uses of outer space.
Commonly understood to refer to measures designed to prevent deliberate harms to a space system, including its component parts, from intended or intentional threats undertaken by another actor.	Commonly understood to refer to measures aimed at preventing accidental or unintentional risks and hazards to space systems (either natural or human made).
Discussions fall under the purview of the United Nations disarmament bodies, including the Conference on Disarmament, First Committee, and the Disarmament Commission.	Issues of space safety are generally understood to be a part of the broader topic of the peaceful uses of outer space, which is discussed at the Committee on Peaceful Uses of Outer Space (COPUOS) and under the purview of the General Assembly's Fourth Committee.

Actors and stakeholders

- While not all States have indigenous space technology, all States are stakeholders of space, as they benefit from its services.
- States bear international responsibility for national activities, including those of non-governmental entities, like commercial actors, which shall require authorization and continuing supervision by the appropriate State (art. VI OST).
- Commercial actors make up around 80% of the space economy, and they are the primary operators.
- Other relevant players capable of influencing law and policy are civil society and academia

Uses

Space technology is fully integrated into humanity's daily lives, providing services upon which we rely every day, which enable communications, navigation, environmental monitoring, humanitarian relief, financial transactions, and military operations, to name a few.

Space technology is essential for both civilian and military applications.

Function	Military use	Civil / Commercial use
Earth Observation	Reconnaissance Surveillance Evaluation of attacks	Mapping Resource exploration Disaster monitoring
Communication services	Command & control ISR	Phone/fax communications Internet TV and radio broadcasting
Positioning, Navigation and Timing	GNSS for military vehicles Precision bombing	GNSS for civilian vehicles Rescue Financial and banking activities
Early Warning & SSA	Missile detection Missile tracking Nuclear explosion monitoring Rocket tracking	Resource exploration Weather observation Forest fire monitoring Volcano monitoring

Threats to space systems

- Counterspace capabilities

Kinetic physical / hard kill	Non-kinetic / soft kill
Used to strike a space system component directly or to detonate a warhead near it. Likely to cause irreversible damage. Easy to attribute. • **Direct-ascent ASATs** • **Co-orbital ASATs** • **Ground station attacks**	**Non-kinetic physical** – physical effects on satellites or ground systems without making physical contact. Can be reversible or irreversible and can be hard to attribute. • **Lasers** • **High-powered microwaves (HPM)** • **Electromagnetic pulses (EMP)**
	Electronic / electromagnetic – target the electromagnetic spectrum used by space systems to transmit and receive data, causing harmful interference. Generally reversible and difficult to attribute. • **Jamming** • **Spoofing**
	Cyber – target the data itself and the systems that use, transmit, and control the flow of data. Can target satellites as well as ground stations or end-user components, such as modems, with the objective of interfering with services, such as internet coverage, to intercept information, or to insert false or corrupted data into a system. Generally reversible and difficult to attribute.

- Repurposing of benign space objects into weapons (dual-purpose objects) → Technologies that are not designed with the express objective of harming other space systems could nevertheless be repurposed and utilised as counterspace capabilities. Examples of such functions include debris removal (ADR) or on-orbit servicing (OOS). They make up around a 1% of space objects.
- Ambiguity relating to civilian and military use of space systems (dual-use systems) → Dual-use space systems are those that can have (i) military and security, as well as (ii)

civilian and commercial functions (such as, for example, GNSS, Earth observation, or communication satellites). The military functions of a dual-use system are not aggressive in nature, but rather aid in optimising military operations, including the use of weapons. As such, States are generally not concerned that these space systems may be used as weapons. They make up around 95% of space objects.

- Lack of common understanding
    - Lack of transparency and communication
    - Lack of clarity about terminology and use of language perceived as threatening

Space security key UN processes

Legally binding initiatives

Name	Mandate / objective	Highlights & achievements	Results
PPWT	Prohibit the "place[ment] in orbit around the Earth [of] any objects carrying any kind of weapons, not to install such weapons on celestial bodies, and not to station such weapons in outer space in any other manner; not to resort to the threat or use of force against outer space objects."	• Evidenced how important having an LBI on space security was for many States. • Some State concerns over the lack of a verification mechanism, as well as the lack of consensus on the proposed definition of "weapon". • First version was introduced in 2008 to the CD by Russia and China. New version was introduced in 2014 after feedback from States.	Not adopted

Non-legally binding initiatives

Name	Mandate / objective	Highlights & achievements	Results
No First Placement	• Commitment not to be the first to place weapons in space. In December 2014 the UNGA adopted Res. 69/32 which encouraged all States (particularly space-faring nations) to also make a political commitment not to be the first to place weapons in outer space.	• Introduced by Russia in 2004. Currently has 37 States that have issued their own unilateral commitment.	Adopted as an UNGA resolution in 2014. Similar resolutions have since been passed almost annually.
No testing of DA ASATs	• Commitment not to conduct destructive ASAT missile tests. On 7 December 2022, UNGA adopted Res. 77/41, which called upon all States to commit not to conduct these tests.	• Introduced by the United States in 2022. Currently has 38 States that have issued their own unilateral commitment.	Adopted as an UNGA resolution in 2022.

Ad hoc groups

Name	Mandate / objective	Highlights & achievements	Results
GGE on the Study on the Application of CBMs	• Established by UNGA resolution 45/55 B of 4 December 1990. • Tasked with carrying out a study on the specific aspects related to the application of different CBMs in outer space, considering the existing technologies at the time, and the possibilities for defining international cooperation mechanisms in key areas of interest.	• Composed of 10 governmental experts. • Met four times between 1991 and 1993. • Highlighted the importance of measures to increase transparency and confidence among space actors to ensure space security and issued proposals for specific confidence-building measures in outer space.	Adopted a consensus report.
GGE on TCBMs	• Established by UNGA Resolution 65/68 in 2010. • Tasked with conducting a study on outer space transparency and confidence-building measures.	• Composed of 15 experts. • Met three times in total from 2012 to 2013. • GEE examined different categories of TCBMs, implementation, and gave specific recommendations for space TCBMs, including information exchange on space policies, military space expenditures, and activities in outer space; notifications of risk reductions; and voluntary site visits.	Adopted consensus report.
GGE on further practical measures for PAROS	• Established by UNGA resolution 72/250 in 2018. • Mandated with making recommendations on substantial elements of an international legally binding instrument on PAROS, including, inter alia, on the prevention of the placement of weapons in outer space.	• Composed of 25 members. • Met twice between 2018 and 2019. • Discussed "(a) the international security situation in outer space; (b) the existing legal regime applicable to the prevention of an arms race in outer space; (c) the application of the right to self-defence in outer space; (d) general principles; (e) general obligations; (f) definitions; (g) monitoring, verification and transparency and confidence-building measures; (h) international cooperation; and (i) final provisions, including institutional arrangements."	Did not adopt a consensus report.
OEWG on reducing space threats through	• Established by UNGA resolution 76/231 in 2021.	• The Group is the first that was open to all States as well as non-governmental entities.	Did not adopt a consensus report.

norms, rules and principles of responsible behaviours	• Mandated to "[t]ake stock of the existing international legal and other normative frameworks concerning threats arising from State behaviours with respect to outer space; b. Consider current and future threats by States to space systems, and actions, activities and omissions that could be considered irresponsible; c. Make recommendations on possible norms, rules and principles of responsible behaviours relating to threats by States to space systems, including, as appropriate, how they would contribute to the negotiation of legally binding instruments, including on the prevention of an arms race in outer space; d. Submit a report to the General Assembly at its seventy-eighth session."	• Met four times between 2022 and 2023. • Advanced discussions on the harmful effects of intentional debris creation, the importance of acting with due regard for others and avoiding harmful interference in their space activities, and the complementarity that may exist between legally binding and non-legally binding approaches to space security.	
GGE on further practical measures for PAROS	• Established by UNGA Resolution 77/250 in 2022. • Mandated to consider substantial elements of an international legally binding instrument on PAROS, including, inter alia, on the prevention of the placement of weapons in outer space.	• Composed of 25 members. • Met twice between 2023 and 2024. • Adopted the first ever consensus report on PAROS. • The report emphasises the relevance of international space law, in particular the OST, as well as the importance of common understanding on key terms and definitions as well as the necessity of including measures for verification in a potential legally binding agreement on PAROS. The report also recognises that non-legally binding mechanisms can complement and contribute to, but not substitute for, an international legally binding instrument on PAROS.	Adopted consensus report.
OEWG on PAROS in all its aspects	• Established by UNGA decision 79/512 in 2024. • Resulted from a merger of two separate OEWG initiatives established by UNGA resolutions 78/20 and 78/238 in 2023.	• Will meet a total of eight times between 2025 and 2028 (twice per year).	Currently ongoing.

	• The merged OEWG is tasked to fulfilling the mandates of the two original OEWGs. • It will examine norms, rules, and principles of responsible behaviour to discuss the following: "(a) Intentional damage to and destruction of space systems; (b) Threats to the safe operation of space objects; (c) Rendezvous operations and proximity operations that could increase the risk of misunderstanding and miscalculation; (d) Protecting critical space-based services to civilians as well as services that support humanitarian operations; (e) Other activities and measures that could reduce the risk of unintended escalation and conflict." • It will also "consider and to make recommendations on substantial elements of an international legally binding instrument on the prevention of an arms race in outer space, including, inter alia, on the prevention of the placement of weapons in outer space, as well as to consider various aspects of the prevention of an arms race in outer space in the context of an international legally binding instrument on the prevention of an arms race in outer space."		

Relevant documents

Select General Assembly resolutions

- A/RES/80/19 - Prevention of an arms race in outer space
- A/RES/80/44 - TCBMS in outer space activities
- A/RES/80/20 - No first placement of weapons in outer space
- A/RES/77/41 - Destructive direct-ascent anti-satellite missile testing
- A/RES/79/18 - Weapons of mass destruction in outer space

Select documents from space security processes

- A/AC.294/2023/WP.22 - Chairperson's Summary of the OEWG on reducing space threats

- A/AC.294/2023/WP.21 - Working Paper on a cross-regional initiative in support of the United Nations Open-Ended Working Group (OEWG) on Reducing Space Threats Through Norms, Rules, and Principles of Responsible Behaviours
- A/79/364 - Report of the Group of Governmental Experts on Further Practical Measures for the Prevention of an Arms Race in Outer Space
- A/78/42 - Recommendations to promote the practical implementation of TCBMs in outer space activities

Recommended readings

- Counterspace Capabilities: Renewed Hope for Cooperative Governance?
- Not a Rose by Any Other Name: Dual-Use and Dual-Purpose Space Systems
- Electronic and cyber warfare in outer space
- Constant Vigilance? Verification and Monitoring for Space Security