

BIGMUN 2025

GA1: Disarmament and International Security

Research Report

Topic 2: Discussing the issue of current and future implications of satellites and space technology as instruments of war.



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Introduction-

The rapid advancement of space technology has brought remarkable benefits to humanity, including global communications, navigation, and scientific exploration. However, as nations increasingly militarise space, satellites and space technologies are being leveraged as instruments of warfare. As the reliance on satellites for communication, navigation, and surveillance grows, their potential misuse as instruments of war poses significant threats to global security and the sustainability of outer space. This report explores the current and future implications of this trend, analysing the historical context, major stakeholders, relevant UN resolutions, and potential solutions to address this pressing issue.

Definition of Key Terms-

Satellites- Artificial objects intentionally placed in orbit around celestial bodies to serve various purposes, such as communication, Earth observation, and navigation.

Space Technology- Technologies used in space exploration and utilization, including satellites, launch vehicles, and space stations.

Weaponization of Space- The placement or use of weapons in outer space to target objects or territories on Earth or in orbit.

Anti-Satellite (ASAT) Weapons- Technologies designed to incapacitate or destroy satellites for military purposes.¹

Outer Space Treaty (OST)- A 1967 international agreement prohibiting the placement of nuclear weapons in space and limiting the use of the Moon and other celestial bodies to peaceful purposes.

¹ United Nations Office for Disarmament Affairs. ASAT Weapons. <https://www.un.org/disarmament/topics/outerspace/>

Background Information-

The militarization of space has evolved significantly since the launch of the first artificial satellite, *Sputnik 1*, in 1957, which marked the beginning of the space age. Initially, satellites were used for scientific research and communication, but their potential for military applications quickly became evident during the Cold War. Both the United States and the Soviet Union developed reconnaissance satellites to gather intelligence ² and tested anti-satellite (ASAT) weapons to disable adversaries' space assets.

The adoption of the Outer Space Treaty in 1967 sought to limit the weaponization of space, prohibiting nuclear weapons in orbit and restricting military activity on celestial bodies. However, the treaty left loopholes regarding conventional weapons and counter-space technologies. These gaps became more apparent with the emergence of precision-guided weapons and satellite-based navigation systems, such as GPS, which were heavily used in modern conflicts like the Gulf War.

In recent decades, nations such as China, Russia, and India have joined the United States in developing advanced space technologies, including ASAT weapons and surveillance satellites. The rise of private space actors, like SpaceX, has also expanded access to space, raising new concerns about the potential misuse of commercial technology for military purposes. These developments highlight the growing risks of space becoming an active domain of warfare.

Major Countries and Organisations Involved-

United States - A leader in space technology, the U.S. has established the U.S. Space Force to maintain superiority in space. It has developed advanced ASAT weapons and missile defence systems.

China - China has tested ASAT weapons, including the 2007 destruction of one of its own satellites, which generated significant space debris. Its space program includes military applications.

Russia - Russia has invested heavily in counter-space capabilities, including the testing of "killer satellites" that can disable other satellites.

European Space Agency (ESA) - While primarily focused on peaceful applications, ESA ³ recognizes the risks of militarization and advocates for space sustainability.

Private Companies (e.g., SpaceX, Blue Origin) - These actors contribute to space exploration and technology development, raising questions about their role in a militarized space landscape.

² NASA. Cold War Satellites. <https://www.nasa.gov/>

³ European space agency. Galileo navigating system. : <https://www.esa.int/>

Relevant UN Resolutions-

The Outer Space Treaty (1967): The cornerstone of international space law, the Outer Space Treaty, states in Article IV that “parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction.” While it restricts the use of nuclear weapons in space, it does not explicitly address conventional weapons or anti-satellite technologies, leaving room for interpretation and potential misuse.⁴

Resolution 2222 (XXI) on International Cooperation in Space (1966): This resolution emphasizes the importance of space as a domain for peaceful purposes, declaring that “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.”⁵

Prevention of an Arms Race in Outer Space (PAROS): Although not yet a formal treaty, the PAROS initiative has been repeatedly endorsed by the UN General Assembly. The resolution stresses that “an arms race in outer space would add a new dimension to the arms race and endanger international peace and security.” Despite widespread support, negotiations on PAROS have been stalled due to disagreements over verification measures and geopolitical tensions.⁶

Resolution A/RES/75/36 on Responsible Behaviour in Space (2020): This resolution calls for the development of norms and principles to promote “responsible behaviours in outer space” and mitigate risks, such as the proliferation of space debris from military activities. It highlights the need for transparency and collaboration among nations to avoid conflicts in space.

⁴ United Nations Treaties Database. <https://treaties.un.org/>

⁵ https://www.unoosa.org/oosa/oaadoc/data/resolutions/1966/general_assembly_21st_session/res_2222_xxi.html

⁶ UNODA. PAROS Resolution. <https://www.un.org/disarmament/>

Previous Attempts to Solve the Issue-

The Outer Space Treaty (1967):

The **Outer Space Treaty (OST)** is the cornerstone of international space law, negotiated during the Cold War by the United States and the Soviet Union. Article IV of the treaty prohibits the placement of weapons of mass destruction in orbit and restricts military activity on celestial bodies. While the treaty was a significant step toward preserving space for peaceful purposes, it left gaps regarding conventional weapons and anti-satellite (ASAT) technologies. These gaps have since been exploited, highlighting the need for updated regulations.

Bilateral and Multilateral Arms Control Efforts:

During the Cold War, the **Strategic Arms Limitation Talks (SALT)** ⁷ and the **Anti-Ballistic Missile (ABM) Treaty (1972)** indirectly addressed the militarization of space by restricting missile defence systems reliant on satellites and space-based technologies. These agreements helped reduce tensions between the U.S. and the Soviet Union but focused primarily on terrestrial weapons systems, leaving the broader issue of space weaponization unresolved.

The Prevention of an Arms Race in Outer Space (PAROS):

The **PAROS initiative**,⁸ repeatedly brought before the UN General Assembly, seeks to establish a legally binding treaty to prevent the weaponization of space. This initiative has been driven largely by Russia and China, who view it as a way to counterbalance U.S. dominance in space and missile defence systems. Despite strong global support, PAROS has faced opposition from the United States, which argues that verification measures are impractical and that the treaty could constrain its defensive capabilities.

Transparency and Confidence-Building Measures (TCBMs):

The United Nations, through the **United Nations Office for Outer Space Affairs** ⁹(UNOOSA), has promoted **TCBMs** as a means to reduce mistrust and foster cooperation. Initiatives include voluntary data sharing on satellite operations and collaborative efforts to mitigate space debris. These measures have been supported by nations like the European Union and organizations such as the **European Space Agency (ESA)**, which advocate for sustainable space practices.

⁷ Office of the Historian. SALT <https://history.state.gov/milestones/1969-1976/salt>

⁸ UNODA PAROS Resolution : <https://www.un.org/disarmament/>

⁹ <https://www.unoosa.org/oosa/en/ourwork/topics/space-security/tcbms.html>

Possible Solutions:

The UN or international organizations could implement-

Strengthen Legal Frameworks:

- Expand and modernize the **Outer Space Treaty (1967)** to include provisions addressing conventional weapons and counter-space technologies.
- Support the adoption and implementation of legally binding treaties such as the **Prevention of an Arms Race in Outer Space (PAROS)**, with clear enforcement mechanisms.

Promote Transparency and Confidence-Building Measures (TCBMs):

- Encourage nations to share information about their space activities through the **United Nations Office for Outer Space Affairs (UNOOSA)** to reduce mistrust.
- Establish a global registry to monitor and regulate the placement and activities of military and civilian satellites.

Develop Space Traffic Management (STM) Systems:

- Create an international framework to regulate satellite placement and orbital activities to avoid conflicts and limit militarization.
- Foster cooperation between nations to track and mitigate potential threats from unauthorized activities in orbit.

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