Disarmament Committee

Combating the rise of Anti-Satellite weapons

MODEL UNITED NATIONS
THE INTERNATIONAL SCHOOL OF THE HAGUE

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Forum	Disarmament Committee
Issue:	Combating the rise of Anti-Satellite weapons
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Introduction

The internet, communication systems, and GPS depend on satellite technology to operate. Entire militaries depend on satellites for data gathering, coordination, and control of their resources. As such, the ability to take out an opponent's satellite is going to play a significant part in the future of warfare, which is reflected in the development of ASAT (Anti-Satellite). As more countries test their counter space capabilities, the chance of a space arms race is expanding, and missing enactment does little to repress such a handle. However, while being expensive, protection lacks for these satellites. They make an easy target and can have great repercussions when destroyed. The opponent's coordination and communication can be completely wiped out by a few missiles.

Since space is considered as 'international water' any conflict is a global issue and can endanger international peace. Therefore, the United Nations Council On the Peaceful Uses of Outer Space (UNCOPUOS) exists, looking to avoid the militarization of space and its resources. These progressions of ASAT technology and general space weaponry are creating high tensions internationally. Proper restrictions and clear regulations are critical in ensuring the safety of the technology we rely on today.

Definition of Key Terms

Anti-satellite weapon (ASAT)

Anti-satellite weapons are space weapons designed to incapacitate or destroy satellites for strategic or tactical purposes. ASATs have also been used to remove decommissioned satellites.

Space debris

Space debris is defunct human-made objects in space—principally in Earth orbit—which no longer serve a useful function. An example are fragments of or unused spacecrafts. This represents a risk to spacecrafts since pieces of debris can cause collisions.

Dual use satellites

Satellites that are used for both military and civilian tasks. The military role is easily concealed. Estimates state that more than half of American and Russian satellites currently in orbit serve or have served military purposes. It is difficult to distinguish these satellites since information is often classified by the state or country that owns it.

General Overview

Types of ASATs

The first ASAT that comes to mind is a missile, but there are two more ASATs that might not be as obvious. Firstly, missiles are accessible to a vast number of states (as they are based on existing ballistic infrastructure) and are successful in destroying the objective. However, the use of missiles has profound consequences as they produce vast amounts of space debris resulting in possible damage to other satellites in orbit. Secondly, laser-based weapons can be used to blind a satellite temporarily or even permanently. This technology is in technological reach for China, the USA and even France. With a precise laser beam the sensors of a satellite can be overheated to permanently blind them. However this can still cause space debris due to the loss of control of the satellite. On the other hand, causing a temporary deactivation of the satellite can be much less destructive and is less likely to lead to further problems. Lastly, cyber warfare offers a low cost and reversible way to create false readings and possibly even take control of a target.

Role of military satellites

The military use for satellites can be summed up in three categories: communication, navigation, and reconnaissance. These allow quick and efficient communication and coordination with allied forces even in highly remote areas. Intel on the movement and deployment of enemy forces as well as information regarding the weather can also be gained and communicated.

The dangers of space debris

Space debris is a real danger because it is travelling at around 7000-8000 mph, this means that the littlest pieces of debris can create enormous damage. As of January 2021, it is reported that 21,901 man-made objects were in orbit, 4,450 of these are operational satellites. There are an estimated 128 million pieces of debris smaller than 1cm, 900,000 pieces around 1-10cm, 34,000 pieces larger than 10cm. [1] This means that every satellite is always under the imminent risk of getting struck by pieces of debris, and different pieces can strike each other creating more debris. Therefore, the creation of debris is to be avoided at all costs. For example, the ISS occasionally needs to adjust its orbit in order to avoid hitting debris. Astronauts also have to perform repairs on the outside of the craft.

Major Parties Involved

United states of America (USA)

The USA has played a significant role in the exploration, development, and research in space for many decades. The USA was one of the first to transition over to satellite-based technology for its military. This use of satellites makes the USA vulnerable to ASAT attacks. Russia, China, India, and the USA are the only nations that have 'declassified' their abilities to use ASATs. This does not mean that they are the only states capable of launching any form of ASAT.

Russian Federation

The Russian Federation was the first nation to launch a satellite in 1957. It is also one of the biggest developers of ASAT technology. Recently Russia has tested their direct-ascent ASAT 'PL19 *Nudol*'. The targeted satellite was hit and generated thousands of pieces of debris. This should be seen as a wake-up call for a multilateral ban on the use of ASATs or any other form of intentional space debris creation. If this is not acted upon quickly, operation costs in space can greatly increase.

China

China first demonstrated their ability to use ASATs in 2007. China also has their own Tiangong Space Station, meaning that it's in their best interest to keep the testing, development, and use of ASATs as restricted as possible and keep space debris to a minimum.

India

India conducted its first successful ASAT test in 2019. It was mostly overlooked by the USA in comparison to their response to China's tests in 2007. This is due to the fact that India is considered

less hostile and is willing to disclose more information and cooperate and communicate with other nations.

Timeline of Key Events

This timeline covers a variety of events that involve the UN and space agreements [Robert]. Shortly after the USSR's launch of their "Sputnik-1" satellite, ASATs started being developed by the US [Blatt]. A variety of nations have recently done tests on their ASATs, including China, Russia, the US, and India [Weeden].

Date	Description of event
October 4, 1957	"Sputnik-1" is launched into Earth's Orbit by USSR
November 3, 1957	First Animal Launched into Orbit
December 13, 1958	First General Assembly Resolution Adopted and Ad-Hoc COPUOS Committee
May 6, 1959	First Meeting of Ad-Hoc COPUOS Committee
December 12, 1959	COPUOS Committee Established Permanently
November 27, 1961	First COPUOS General Assembly Meeting
December 20, 1961	First UN Space Object Register Created
January 27, 1967	First International Outer Space Treaty Opened
January 7, 1970	United Nations Expert on Space Applications First Appointed
August 1982	Second Conference on Exploration and Peaceful Uses of Space
November 1, 1991	Regional Centre for Space Science and Technology Education in Asia and the Pacific Established
July 1999	Third Conference on Exploration and Peaceful Uses of Space
December 22, 2007	Space Debris Mitigation Guidelines Established by the UN General Assembly
January 11, 2007	China Tests ASATs, Successfully Destroys a Satellite
May 19, 2009	Safety Framework for Nuclear Power Source Applications in Outer Space
2018	Non-Kinetic ASAT development begins by Russia and China

UN involvement, Relevant Resolutions, Treaties and Events

There are a variety of committees and resolutions that have been made concerning space and its uses, however, there is no specific legislature on ASATs.

- Proposed Prevention of an Arms Race in Space (PAROS) Treaty
- Recommendations on enhancing the practice of States and international intergovernmental organizations in registering space objects (A/RES/62/101)

- Recommendations on national legislation relevant to the peaceful exploration and use of outer space (A/RES/68/74)
- Application of the concept of the "launching State" (A/RES/59/115)
- COPUOS under UNOOSA Committee
- Artemis Accords, signed 2020
- Outer Space Treaty, signed in 1967 (Resolution 2222 XXI)

Previous Attempts to solve the Issue

Anti-satellite weaponization as a topic is yet to be addressed by the UN. So far, the only resolution that touches on this topic is the Outer Space Treaty. However, this treaty is quite outdated and should be redrafted in order to address ASATs and their development. Many nations have condemned ASAT tests done by other nations, but they have yet to pass specific legislation [Borgen]. Most resolutions written concerning space do not include ASATs. There are three main relevant fields of international law that apply to ASATs, the Outer Space Treaty, environmental laws, and international law related to weapon testing [Schellekens].

Possible Solutions

Some possible solutions may be holding regulatory conferences, for example under UNMSD. Resolutions should also encourage the removal of space debris. There may also be bans in certain orbits. For example banning ASAT use in low-Earth orbit.

There is a great variety of regulations that may be made, feel free to get creative with these. Private space companies should also be taken into account in these resolutions. Once regulations on ASAT use are made, UNOOSA is a body of the UN that can help in monitoring and updating these.

There are a variety of other issues that may be addressed, such as government transparency. Transparency on the use and testing of ASATs may be encouraged. The revision of existing treaties such as the Outer Space Treaty may also be encouraged. Another important issue that should be addressed is the control of space traffic. ASAT tests may interfere with it which poses a danger to other neighboring satellites.

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Appendix or Appendices

Please refer to the links in the bibliography.