

Committee: Disarmament & International Security



Topic: Satellite Warfare

Satellite

An artificial object put in orbit around the earth or other planets for to collect information or for communication. It is uncertain whether this can classify as an armament or not as they can be fitted with weapons or used for peaceful purposes, such as secret surveillance.

Space Debris

Sometimes known as orbital debris, space debris are pieces of anything ranging from fragments of satellites to boxes that NASA sends to space with the hope of reaching extra-terrestrial life. They can be as miniscule as flecks of metal and on the other extreme can be as large as an entire satellite itself that has stopped working.

International Space Station (ISS)

A large spacecraft that orbits earth. It also is a home for astronauts to live in and also has a unique laboratory to conduct experiments in space to further astronomical knowledge. The ISS is located

at height of 400 kilometres and orbits the earth 16 times every day. It was first launched in 1998 and is a combined effort of the following nations. The United States, Russia, Canada, Japan, Brazil, Belgium, Denmark, France, Germany, Italy, Netherlands, Norway, Spain, Sweden, Switzerland and the United Kingdom (England, Northern Ireland, Wales and Scotland).

International Space Station

A type of guided missile using propulsion to move from one place to another. The travel path of ICBMs start from earth and then enter sub-orbital orbit, (Just above the atmosphere), finally dropping into the desired area. With a minimum range of 5,500 kilometres, these missiles can reach most places on the globe and can carry nuclear warheads along with biological and chemical weapons.

COPUOS

Committee On the Peaceful Uses of Outer Space. This committee was established in 1959 and has made international five major treaties to prevent the development of weapons to be deployed in outer space.

PAROS

Preventing an Arms Race in Outer Space. A UN resolution that bans the prohibits the weaponization of outer space.

Low Earth Orbit (LEO)

This is the area just under the main orbit of the earth where most man-made satellites are located. the altitude of LEO is from 160 kilometres above the earth up to 2,000 kilometres above the earth. If any object it deployed lower than the LEO, then it was fall back to earth and possibly burn up due to Orbital Decay

Orbital Decay

Orbital decay is a physical phenomenon where the altitude of an object (In LEO or below) continues to decrease because of the force of gravity that is acting upon the object. As any object comes closer to the earth's surface, the force of gravity becomes stronger and the friction in the atmosphere pulls the object down.

Anti-Satellite (ASAT) -

A type of weapon used in almost all militaries around the world and most do not come under space weapons, allowing nations to proliferate these weapons, putting both military and civilian satellites in danger.

Air Launched Miniature Weapons (ALMVs)

A ground based ASAT weapon which is a two-stage missile that is launched from an F-15 fighter pilot or any similar vehicle at a high altitude, below the Kármán Line. This missile then ascends into the LEO locating the targeted satellite and destroys it. This type of explosion is known as a kinetic kill and ALMVs are technically more challenging to manufacture than most ASAT weapons.

INTRODUCTION

As the world continues to progress through space exploration many worries have been raised on peacekeeping efforts. Outer space is a completely new demographic to place new weapons and test them. In other words nations have the ability to deploy weapons in space with unlimited range and unfathomable power. Space machines are also mostly self-sustaining through solar power meaning that these weapons have enough energy as well. This problem was raised to the General Assembly during the 1950's. Soon an entire committee was formed to tackle these issues called COPUOS in 1959 just after the satellite Sputnik was launched into space. Peacekeeping in space at the time was a concern with the space race and the cold war going on with increasing tension between the two biggest superpowers in aerospace technology at the time, The United States of America and Russia. Various treaties have been put in place to keep the peace, the most remarkable being the Outer Space Treaty. This treaty states that no celestial body [including the moon] can be owned or declared as territory of any nation and can only be used for peaceful purposes. This means that national appropriation is not in order for any celestial body and nations can use celestial bodies only for peaceful purposes. Violations of this could range from using planets as a military base or harvesting the moon for resources to make weapons. Apart from that there have been two other main treaties and resolutions that have been passed to make sure that the peace in outer space is maintained. There are many more issues that arise from the weaponization of space such as the proliferation of space debris and the lack of clarity in definition of certain keywords, leaving many loopholes in these kinds of treaties.

Still, majority of all satellites and equipment in space are for civilian use. There were 1,100 functional satellites in space as of 2017 and an estimated 320 of them are military satellites. Meaning that approximately 29% of all active satellites are for military purposes. The other 71% are purely civilian satellites. Space debris that these weapons can cause and using space debris as a weapon or "armament" is also an issue. Similarly, many nations are slowly proliferating the amount of militarised satellites and other artificial machines in space, treading on a thin line between militarisation and weaponization.

KEY ISSUES

Lack of information on definitions

One of the largest problems that the U.N is facing today is the fact that in outer space, anything can be a weapon. A small amount of space debris is enough to destroy an important satellite, so the UN has trouble defining what is meant as an armament or weaponization in outer space. Some nations are using the lack of detail to take steps closer to the weaponization of space. Militarisation in space has started ever since the earliest communications satellites were sent into space. They help the military communicate and communicate and monitor others all around the world. The Global Positioning System aids navigation and tracking. Militarisation also includes using satellites capable to direct bombings and other attacks. Despite some of the activities classified in the militarization of space may not be peaceful, it is still permitted, and many nations have already militarised outer space. Weaponization directly refers to launching a device with destructive abilities into the earth's orbit. This doesn't include the land-based weapons that can attack objects and assets that are present in outer space as these weapons aren't in the earth's orbit. Several nations have also started investing in a technology known as a ballistic missile defence shield, which can potentially protect nations from any ICBM threat from anywhere in the world. In the name of defence, nations can legally put these shields into space. U.N officials fear that nations will launch offensive mechanisms under the pretence of "national security" or "defence". One example of this is a defensive system known as a Kinetic Energy Interceptors (KEI) which use missiles with guidance systems to smash into incoming missiles or ICBM's. These kinetic energy interceptors are meant to be placed in space for them to intercept the incoming attack without causing civilian damage or a radiation leak. One can easily see how this can be weaponized for offensive use, claiming that the purpose of these machines is to "protect" the nation.

The power of space weapons

The power of these space weapons would be unbelievable. Apart from being able to unleash ICBMs from above, space weapons also can access any place on the planet. The United States Of America owns a satellite known as the Lacrosse- a surveillance satellite - that can read the watch of anyone who steps outside of their house anywhere on the planet. This is due to the earth's orbit allowing satellites to go around the earth without using any energy. Various nations have already shown anti-satellite and space weaponry capabilities but have not deployed them into space.

Software weapons

Despite the power of space weaponry, there is a major threat to both civilian and military satellites. Although a ground-based weapon, it can easily breach and rewrite the satellite code, jamming it and stopping it from carrying out its desired purpose. Within minutes, it can turn the satellite into space debris. The proliferation of these software weapons is not addressed in PAROS, The Outer Space Treaty or any of the other resolutions and treaties passed by COPUOS.

NATIONS INVOLVED & MAJOR PARTIES

The United States Of America

The United States Of America is one of the P5 nations in the UN. Despite this, U.S seems on the brink of breaching the PAROS resolution and the Outer Space Treaty. PAROS states that no nation can weaponize space. U.S already has plans to put a KEI system in space and is already developing more cost efficient and powerful ones. Despite not officially violating this resolution under the pretence of defence and militarisation and not weaponization, this is just one step further to the full weaponization of space. Many U.S satellites already have the ability to conduct large bombings and orchestrate the logistics to do so. The U.S also has the capability to decimate satellites through ground-based weaponry and artillery.

China

China has been developing various ICBM defence systems ever since 2003. As previously discussed, these defence systems include KEI's which have ASAT capabilities. Although these weapons are technically allowed to proliferate, there is some tension between nations on their development. Many nations argue that on these cases but are not registered with the UN since these KEI's are made for defence purposes.

Roscosmos

Roscosmos is a space agency based in Russia, funded, supported and controlled by the Russian government. It has been involved in many successful space excursions. One illustration of this point was the deployment of Sputnik in 1957 where Russia launched the very first satellite into the LEO and any other orbit. With this, Roscosmos has vintage, technology and experience on its vast repertoire of skills. However, this can pose some risks for peacekeeping. As previously mentioned, Roscosmos is planning a moon orbit space station with U.S which will officially become their territory if built. Roscosmos is also planning to build a research station on the moon by 2045 but most nations are aware that it could also be a form of national appropriation if Roscosmos is the only party that is responsible for the creation of this lunar base.

SpaceX

SpaceX is an independent, private organisation lead by South African businessman and investor Elon Musk, who was also the product architect of Tesla. Tesla was already a breakthrough product technologically and Musk is doing the same with SpaceX. His company's technology is way beyond that of NASA and other governmental agencies and has successfully managed to build a space shuttle than can land back on the ground without detaching itself in the process which is a breakthrough that is light years ahead of everyone else. Musk has plans of building an orbital space hotel which is to orbit the earth and for later projects the moon. He is also planning to use these "reusable space shuttles" for tourism purposes to send passengers into space while being economically resourceful.

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