



# Research Report

First General Assembly

Preventing an arms race in space through norms, rules and principles of responsible behaviours (II)

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## First General Assembly

### INTRODUCTION

The First General Assembly is also known as the Disarmament and International Security Committee. That means that this committee will do everything in their power to ensure the safety and the security of all nations. This therefore includes safety within space, this is a previously debated topic by the United Nations.

The issue of preventing an arms race in space through norms, rules and principles of responsible behaviours, is extremely important in the current state of all nations. These nations continue to advance their space technology, which causes concerns regarding the potential militarization and weaponization of outer space.

Prevention of an **Arms Race** in Outer Space document is a 1981 UN resolution. This document ensures the fundamental principles of the 1967 Outer Space Treaty and advocates for a ban on the weaponization of space. In the years after, many resolutions regarding the prevention of an arms race in outer space have passed.

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## Definitions of Key Terms

### Arms race

A competition between nations for superiority in the development and accumulation of weapons

### Celestial

Positioned in or relating to the sky, or outer space as observed in astronomy

### Confounded

To be tricked and confused

### Countermeasures

An action taken to counteract a danger or threat

### Nuclear weapons

A bomb or missile that uses nuclear energy to cause an explosion

### Orbit

The curved path of a celestial object round a star, planet, or moon.

### Outer Space

The physical universe beyond the earth's atmosphere

### Payload

An explosive warhead carried by an aircraft or missile

### Satellite

Artificial body placed in orbit around the earth or moon in order to collect information

### Space based technology

This refers to the use of advanced tools, equipment, and systems that operate in outer space or are based on assets located in space

### Sub-orbital flight

Spaceflight where the spacecraft reaches outer space, but returns to earth

### Warheads

The explosive head of a missile

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### General overview

In 1610, the first official research regarding **outer space** happened, humans discovered the Galilean moons, lunar craters and the phases of Venus. From then on, a lot of research has been done in order to discover the secrets of the Universe. In 1944 the first spaceflight in history happened with a man-made object in space. In 1957 the first artificial **satellite** was put to use by the Union of Soviet Socialist Republics (USSR), nowadays known as the Russian Federation. In 1969, the first human stepped on another **celestial** body, being the moon. The most recent achievement is the first landing at the lunar south pole in August 2023 by the Republic of India.

Over the centuries, space exploration has changed from purely scientific reasoning to a domain with military implications. The Cold War marked the beginning of this space militarization. Within this time period, the development of the Anti-satellite weapons happened.

Anti-satellite (ASAT) weapons are still quickly developing, they are able to destroy satellites, so far, none have been utilised in warfare. A few countries have shot down their own satellites to demonstrate the power of their ASATs. These countries are the People's Republic of China, the Republic of India, the Russian Federation and the United States of America.

ASATs have several uses, they are used as defensive measures against ballistic missiles and against nuclear weapons.

A ballistic missile uses projectile motion to deliver **warheads** on a set target. Intercontinental ballistic missiles (ICBMs) are launched in a **sub-orbital flight**. Meaning that these weapons travel through space, and therefore the nations making use of these ICBMs are participating in an arms race through space. The first ballistic missiles date back to the 13th and 14th century, ballistic missiles have been used extensively during World War II.

Ballistic missiles are used in different ways, combined with different ranges. They can be categorised based on ranges:

- Air-launched ballistic missile (ALBM)
- Tactical ballistic missile - Range: 150 - 300 km
- Theatre ballistic missile (TBM) - Range: 300 - 3,500 km
  - Short-range (SRBM) - Range: 300 - 1,000 km
  - Medium-range (MRBM) - Range: 1,000 - 3,500 km
- Intermediate-range ballistic missile (IRBM) - Range: 3,500 - 5,500 km
- Intercontinental ballistic missile (ICBM) - Range: 5,500+ km
- Submarine-launched ballistic missile (SLBM) - launched from ballistic missile submarines (SSBNs)

Most current designs have intercontinental range. Two exceptions are an operational SLBM from India, and a SLBM from North Korea, which is currently operationally deployed. China also has a SLBM with a range of less than 2,500 km.

IRBMs are often used to deliver **nuclear weapons**, since it is the most cost effective due to their **payload**.

The Russian Federation and the Republic of China, currently own the heaviest payloads within ICBMs.

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Missile defence is a system, weapon, or technology involved in the detection, tracking, interception and also the destruction of attacking missiles.

The Republic of China, the French Republic, the republic of India, the Islamic Republic of Iran, the State of Israel, the Republic of Italy, the Russian Federation, Taiwan, the United Kingdom and the United States of America have all developed such air defence systems.

Missile defence can be divided into categories based on: type/range of missiles, the trajectory phase and whether intercepted inside or outside the Earth's atmosphere:

- Type/range of missile
  - Strategic - targets long-range ICBMs
  - Theater - targets medium-range missiles
  - Tactical - targets short-range tactical ballistic missiles
- Trajectory phase
  - Boost phase - intercepting the missile while its rocket motors are firing, usually over the launch territory
  - Mid-course phase - intercepting the missile in space after the rocket burns out
  - Terminal phase - intercepting the missile after it reenters the atmosphere
- Location relative to the atmosphere
  - Endoatmospheric - usually shorter ranged
  - Exoatmospheric - usually longer-ranged

There are a few nations that stand out for possession of these missile defences are the United States of America, the Russian Federation, the Republic of China and the State of Israel.

Anti-ballistic missile (ABM) defence **countermeasures** are tactical or strategic actions taken by an attacker to overwhelm, destroy, or evade anti-ballistic missile defences.

These countermeasures can be categorised in a variety of ways, such as whether something is attacked or just **confounded**, by the type of ABM system they operate against and they can be categorised by which part of a ballistic missile's flight they are active.

### Decoys

Disrupting the efficacy of Missile Defense Systems by launching decoys, to distract interceptor sensors and fooling it by making many targets available in a sudden moment.

- Replica decoys:  
To mask the attacking ICBM via the release of many similar missiles, this decoy confuses the missile defence system by the sudden replication. The chance of the actual ICBM passing, therefore, increases.
- Decoys using signatures diversity:  
All decoys released have slightly different appearances from both each other and the warhead itself. This confuses the defence, due to the fact that it cannot know what the real threat is, therefore the chance of the actual warhead passing increases a lot.
- Decoys using anti simulation:  
Intends to fool the operation of the system itself, it disguises the warhead as a decoy, but the disguised decoy is the actual warhead. The Warhead may simply pass as undetected, or rejected as a threat

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### Cooled shrouds:

This method covers the missile in a steel containment filled with liquid oxygen, nitrogen, or other liquified gasses, which prevents that the missile can easily be detected. The capsule blocks the infrared sensors.

### Biological/chemical weapons:

This involves the release of biological and chemical weapons from the missile. It is a system of submunition attack, which is too numerous for the system to defend against while also distributing the chemical biological agent across a large area of attack.

North Korea has tested such a system in 2017.

### Dynamic trajectories:

Missiles that can manoeuvre and vary their trajectories in order to evade missile defence systems. Iran and North Korea as well as The Russian Federation make use of these trajectories

### Jammers:

Jammers use radar noise to saturate the incoming signals to the point where the radar cannot discern meaningful data about a target's location with meaningless noise. They can also create a fake target, this eventually creates a clear path to their target.

Countermeasures attacking the defender

- Increase the size of attack to overthrow the defender

Countermeasures attacking the defence

- Includes anti-satellite weapons, space weapons, and the launching of debris or projectiles in identical but counter-rotating **orbits** to a space-based defence.

Countermeasures confounding the defence

- Limiting the infrared signature of the booster, use of decoys, use of reflective coatings, cause the defender to reveal their defences and expend valuable resources

The use of ballistic missiles started around World War II, the Germans struck London during the war in September 1944. One year later, the United States of America started developing ways to defend themselves against ballistic missiles.

In 1957, at the height of the cold war, the Soviet Union tested the first ICBM, soon after in 1957, the United States launched their own first ICBM. The States then also started to work on its first anti-ballistic missile system.

The Soviet Union demonstrated in 1961 the ABM capabilities when it first successfully intercepted its first ballistic missile. Soon after, the U.S.A. test their ABM system. In 1966, China launched its first nuclear missile. In 1967, the Outer Space Treaty which mandates that "in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction."

In 1972, the ABM treaty was signed by Nixon and the Soviet General Secretary. The U.S ABM system reportedly got its first combat success in 1991.

The Missile Defense Act of 1991 was signed. In 1997, the ABM Treaty allowed theater defences.

In 1998, North Korea tested their three-stage rocket for the first time, in an attempt to launch a satellite into orbit. More than a year after, North Korea pledges to suspend further long-range missile testing

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### Prevention of an Arms Race in Outer Space

“Calls on all States, in particular those with major space capabilities, to contribute actively to the peaceful use of outer space, prevents an arms race there, and refrain from actions contrary to that objective”. 178 countries voted in favour of this resolution, no one against, and 2 abstentions (United States of America and the State of Israel).

This 1981 UN resolution affirms the fundamental principles of the 1967 Outer Space Treaty and it advocates for a ban on the weaponization of space.

A second resolution was added to this topic, No first placement of weapons in outer space. It emphasises the prevention of an arms race in space that states that “other measures could contribute to ensuring that weapons were not placed in outer space”. 126 countries voted in favour , 4 against (Georgia, Israel, Ukraine, United States of America) with 46 abstentions.

These resolutions can be found in the further readings.

Ever since, many resolutions have been adopted on the norms, rules and principles of responsible behaviours within the theme of the peaceful use of outer space.

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### Major parties involved

#### The People's Republic of China

This country has a large role in the discussion regarding the topic. This is mainly due to the fact that China has an extremely active role in the exploration of space, as well as, making use of space in history. China has previously developed several ballistic missiles and rocket programs. China has also launched several satellites.

#### The Republic of India

The Republic of India specifically has a great addition to this issue. It has the most recent achievement with the first landing at the lunar south pole. They have also portrayed the capacities of their ASAT weapons and have an operational SLBM. The republic of India has also developed a missile defence system.

#### The Russian Federation

This nation has a big history around this topic, as well as they are currently still relevant to the issue at hand. The country, which was previously known as the Soviet Union, was the first to put an artificial satellite to use. They also created and tested the first ICBM along with showcasing the capabilities of their ABMs. The Russian Federation has also proved the powers of their ASAT weapons. They are one of two, to own the heaviest payloads within ICBMs. The Russian Federation has developed a good working defence system.

#### United States of America

To start off, they have proven the capabilities of their ASATs, along with this, they have developed a working missile defence system. The United States of America has great possessions over space technology, including space bases. The United States of America has tested out, and proved the danger of, their missiles.

#### The Democratic People's Republic of Korea (DPRK)

Also known as North Korea, is in possession of an operational SLBM. It has also tested the use of biological and chemical weapons in 2017, they also can make use of dynamic trajectories. After testing many of their missiles, they have previously pledged to suspend further long-range missile testing. The Democratic People's Republic of Korea is also in possession of several types of nuclear weapons.



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### Timeline of Key Events

1610	First official research regarding outer space
1944	First spaceflight with a man-made object in space = missile
1957	First ICBMs launched by Soviet Union and United States of America
1961	Soviet Union demonstrates ABM, first interception of a ballistic missile
1966	China launched its first nuclear missile
1967	The Outer Space Treaty is created
1969	First human on another celestial body, the moon
1972	ABM treaty was signed by Nixon and the Soviet General Secretary
1981	The Prevention of an Arms Race in Outer Space is created
1991	The Missile Defense Act was signed
1997	The ABM treaty now allows theater defences
1998	DPRK testes their three-stage rocket
1999	DPRK pledges to suspend further long-range missile testing
2001	Israel-Palestine war, where missiles are used
2017	DPRK tests biological/chemical weapons

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### Previous attempts to solve the issue

There have been quite a few attempts to solve the issue, several resolutions have been made, and have passed. However, it is still a current issue. We see this in the current Israel-Palestine war, where missiles have been used for several attacks. This is not the only situation where such missiles have been used since the Outer Space Treaty and the Prevention of an Arms Race in Outer space was created.

The only countries that have chosen to not vote in favour of these resolutions are the United States of America, the State of Israel, Ukraine and the Republic of Georgia.

These two resolutions ensure the safety of space through norms, rules and principles. However, it is shown that this has not solved all problems yet.

### Possible solutions

In order to help start the debate, this research report provides possible solutions from which a resolution can be created.

- Peace treaties can be formed
- Amendments can be submitted regarding the legalisation of ballistic missiles
- Research can be done to find other ways of armed use of space
- Clarify the norms, rules and principles of all nations
- Clarify responsible behaviours of all nations
- Amendments can be submitted regarding the exploration of outer space
- Solutions can be created because of a limitation of war crimes
- Join our committee group chat if you have taken the time to read this report fully:  
<https://chat.whatsapp.com/FU5CDpAqmaYI9zRNbSXgOH>

### Further Readings

- <https://digitallibrary.un.org/record/610780>
- <https://web.archive.org/web/20170704040738/http://www.un.org/press/en/2014/ga11593.doc.htm>
- [https://treaties.unoda.org/t/outer\\_space](https://treaties.unoda.org/t/outer_space)
- <https://documents-dds-ny.un.org/doc/UNDOC/GEN/N20/354/39/PDF/N2035439.pdf?OpenElement>
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