Futuristic Security Council (FSC)

Preventing the Militarisation Regarding the Usage of Orbital and Lunar Technologies in Space

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Forum: Futuristic Security Council

Issue: Preventing the Militarisation Regarding the Usage of Orbital and Lunar Technologies in Space

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Introduction:

This session of the Futuristic Security Council will be set in the 2050's, it is therefore crucial that all delegates are aware of possible future events in regard to the issues at hand. Delegates should be aware of their respective countries potential risk and tolerance to future prospects and possibilities. The Futuristic Security Council is an Ad Hoc committee, meaning that delegates present clauses to be debated as if they were complete resolutions. Moreover, the Security Council is legally binding and the P5, (China, France, the United States of America (USA), Russia and United Kingdom) are the 5 permanent members of the Security Council and have VETO power.

The issue "Preventing the militarisation regarding the usage of Orbital and Lunar Technologies in space" focuses on the various ways to prevent nations from using space-based technologies specifically Orbital and Lunar Technologies for military purposes in space. By the 2050s, outer space will have become one of the most strategically contested areas in international politics. Orbital and Lunar technologies will no longer be the domain of solely superpowers, they will be key components of resource accretion, geopolitical influence and global defence for all. With over 100,000 satellites expected to be in orbit and various nations functioning semi-permanent bases on the Moon. There with more and more states and private actors gaining access to space, the threat, risk and potential of military escalation in space is no longer just speculative but imminent (BryceTech, 2022; ESA, 2023).

While a large majority of developments of orbital and lunar technologies originate from peaceful, scientific exploration, innovation and international advancement and development, they still bring risks. Technological advancement in space such as satellites, lunar orbiters, anti-satellite weapons. can easily be repurposed for strategic, offensive or military objectives. The dual-use nature of space technologies, specifically lunar and orbital makes the line between peaceful national, civilian and military intent harder and harder to distinguish. It is clear that these technologies are able to serve both civilian and military functions, but this makes it difficult to ensure and enforce consistent peaceful use. The lack of strict, binding regulations on the deployment of Lunar and Orbital Technologies in outer space creates a path for covert militarisation.

The militarisation of space refers to the deployment or use of military technology and weapons in the Earth's orbit and outer space. Even though treaties like the 1967 Outer Space Treaty prohibit the placement of nuclear weapons or any exploration or actions deemed not for peaceful purposes. These are not being fully respected and by be less and less respected as time passes, these treaties are growing outdated and lack enforceability, making it even more urgent for this issue to be addressed and acted upon. It is the responsibility of all nations to design forward-thinking, enforceable, and multilateral solutions to preserve our outer space for long-lasting peace.

This research report aims to give an overview of the issue currently as well as possible future events and impacts based on scientific models.

Definition of key terms:

ASAT Test

ASAT tests are used by countries to destroy or incapacitate satellites, including through physical destruction.

Anti-satellite weapons (ASATs)

Weapons designed to destroy or limit satellites for military purposes.

Dual use technology

Goods, software and technology that can be used for both civilian and military applications.

Electromagnetic Pulse (EMP)

A burst of electromagnetic energy produced by a nuclear explosion in the atmosphere

Lunar Technologies

Tools, systems and infrastructure on and around the Moon, for example: lunar bases or lunar orbiters.

Militarisation of space

The development and use of military technology and weapons in the Earth's orbit and outer space.

Orbital Technologies

Technologies refer to tools, systems and infrastructure used in and around the Earth orbit, for example: anti-satellite weapons or space stations.

Kinetic energy weapon

A projectile weapon designed to destroy space assets, either by an intentional collision or by using warheads to destroy them

General Overview:

Current orbital and lunar technologies

The first ever satellite, Sputnik 1, was sent into space was in 1957 by the USSR, according to UNOOSA record there has since then been 8,261 satellites orbiting Earth. More than 80 countries now have a presence in space. As of 2025, many countries from the USA to Israel as well as private companies such as SpaceX have significantly invested in space technologies specifically orbital and lunar technology. 8,261 satellites are currently in orbit, this number is expected to exceed 100,00 by 2050 due to megacontellations launched by companies such as SpaceX (Union of Concerned Scientists, 2024). Lunar technology has also had similar advancements, with Artemis missions and the Chinese Chang'e programs whose goal is for long-term lunar habitation. By 2050, expert predict that there will be various active lunar bases, some for scientific use and others for potential strategical resource extraction, such as mining helium-3 and other rare earth metals present on the Moon (ESA, 2023).

The new space race

The concept of the "space race" has been a recurring term in global geopolitics. During the Cold War, the USA and the USSR's rivalry and tension extended beyond the planet Earth and into orbit and outer space, leading to the militarisation of satellites for intelligence and missile defence. This was somewhat limited by the Outer Space Treaty (1967) and the Moon Agreement (1979), who's aim was to prevent the "national appropriation of celestial bodies" (UNOOSA). But this 21st century space race is different to the previous one. The Cold War Space race was about getting "up and out" (Marshall), this time it is about claiming and protecting what's up there, as more and more countries become spacefaring nations, history suggests there will be various competition along the way. Space is central to communication, economics and military strategy, in order to protect what is up there for a country's interest, most resort to militarisation in order to protect their resources and finds. Currently the USA, China and Russia are clear front runners, but the race is very different this time, as mentioned before more than 80 nations have a presence in space. Most are prepared to protect what is

theirs, often meaning militarisation, and in this instance, this means militarisation of their assets in space and orbit, frequently referring to the nation's lunar and orbital technologies.

Present-day and predicted state of militarisation in space

There are currently various countries including, the United States, China, Russia and India, maintaining military space programs. Many countries have military space forces such as France, Spain, India. However, these countries are often forced to combine their air and space forces under one military branch due to the size of these forces. Some examples of this include the Russian Aerospace Forces, Spanish Air and Space Force, French Air and Space Force. Furthermore, some countries decide to put their military space force into independent defence agencies, take the Indian Defence Space Agency as an example. Nonetheless as of 2025 there are 2 independent space forces in the world, the US Space Force established in 2019 and China's People's Liberation Army Aerospace Force established in 2024. Moreover, reports by the Secure World Foundation (2024) indicate that over 30 nations now operate reconnaissance or dual-use satellites. In the past years Russia and China have conducted successful ASAT tests. These create orbital debris - which posed not only geopolitical but environmental and operational risks. As of 2025 there are various countries with a significant military space force and presence in space and as time goes on this will do nothing but grow.

If nothing is done to change these trends, by 2050, space will most likely become a large domain of military competition. Forecasts by RAND Corporation (2024) propose that space-based defence systems, kinetic energy weapons and electromagnetic pulse (EMP) platforms may be operational and capable of targeting ground or orbital assets with precision. Moreover in 25 years time lunar infrastructure will include establishments of permanent moon bases, according to a joint roadmap by NASA and European Space Agency, such bases will not only be used for scientific research and resource extraction of material such as helium-3, rare earth minerals. But may serve a strategic military outpost. This is just one example of very likely dual-use nature of many lunar and orbital technologies, which in turn raises growing concerns over the potential militarisation of space. It also raises the question; how can we differentiate the technologies used for civilian purposes and those used for military purposes?

Key Events Timeline

Date	Event Description

4 October 1957	Launch of the first satellite into orbit, Sputnik 1.
27 January 1967	Outer Space Treaty signed, banning weapons of mass destruction in outer Space.
20 July 1969	Moon Landing of Apollo 11, the first humans land on the Moon.
1 June 2000	Inauguration of the International Space Station (ISS).
27 January 2007	China's Anti-Satellite Missile Test, China destroys one of its own satellites using a ground launched missile.
21 February 2008	USA shoots down a malfunctioning spy satellite this is known as "Operation Burnt Frost".
11 December 2013	China lands the rover "Chang'e 3" on the moon, which is part of a robotic lunar exploration mission.
7 May 2020	Russia conducts Anti-Satellite weapon test in Orbit.
16 November 2022	Artemis I launches, the first of 6 missions to the Moon between 2022 to 2030.
17 April 2023	China announces its plans for a Lunar South Pole Base by 2030.
2050	Over 60 countries and 500 + private entities will be present in orbit and on the Moon. There will also be 10,000 active satellites in outer space.

Principal Stakeholders

United States of America

The USA has a large history with outer space, as one of the dominant space powers, it has a history of military satellite deployments as well as space mission for scientific purposes. It is also one of the two nations with an independent space force. It promotes the Artemis Accords but hasn't signed any binding agreements banning all weapons in space.

China

China is one of the two nations with an independent space force. Having significantly advanced in its spacial capabilities in the 21st century, China is now one of the main spacefaring nations. Even though China publicly support peaceful use of outer space, it has not joined the Artemis Accords and is rumoured to the developing a nuclear plant on the moon with Russia.

Russia

Russia has been a pioneer of space activity since the Cold War times and currently holds a powerful military space program. They have conducted multiple ASAT tests. They tend to frown upon most US-led initiatives and support agreements on the peaceful use of outer-space often alongside China

India

India has become a major power in terms of space since it's ISRO-led lunar missions and military satellites. India has not conducted any kinetic ASAT tests since 2019 and advocates for peaceful development in space but remains protecting its space interests

United Nations Office for Outer Space Affairs (UNOOSA)

UNOOSA advocates for the peaceful and cooperative use of outer space. It also oversees and is in charge of international treaties like the Outer Space Treaty (1967). While it sets guidelines, it lacks power to enforce it.

Potential Avenues for Resolution

There are a multitude of possibilities in solving this issue. Please note that these suggestions are merely suggestions and delegates may provide alternative solutions during debate.

Firstly, diplomacy lies at the core of this issue, strengthening international frameworks and rules related to militarisation of orbital and lunar technologies in space would be a pivotal step towards change. Strengthening and most importantly updating existing treaties such as the Outer Space Treaty (1967) in order to better reflect the modern reality has been something called for by many. Discussing regulating lunar and orbital technologies, addressing dual-use technologies and setting clearer enforcement mechanisms should all be considered.

Secondly, another approach could be setting up demilitarised zones, areas agreed upon by the international community of the orbit and the moon in which there are no weapons whatsoever. This would simply allow certain areas to always be preserved and peaceful as well as free of potential militarisation.

Another potential avenue for resolution could be to ban certain weapons/technologies from entering outer space. This would prevent certain technologies, more at risk of militarisation, to simply be absent from the orbit and moon's atmosphere. An example of such technology may be: ASAT weapons.

It is also possible to appoint a third party, neutral, body to oversee activities in outer space in regard to orbital and lunar technologies. This third body party would be given jurisdiction to reprimand and stop any activity they might consider dangerous and relating to militarisation.

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