Today, the world of international relations feels quite small. Since the demise of the Soviet Union and the end of the Cold War in 1990, the nations of the world have experienced unprecedented “globalization,” or economic and social interdependence. Today, it is possible to watch CNN, a US cable news channel, in China and Vietnam, or to read the People's Daily (from China) in English while in the US. Moreover, thanks to new communication and transportation technologies, people and products can move around the globe in ways that were just figments of someone’s imagination just 150 years ago.

Despite these advances in human connection, one of humanity’s yet-to-be-realized hopes is to live together in peace on planet Earth. Every year from 1816 to 2016, there has been at least one interstate or civil war. From World War II to 2014, there were 248 wars in 153 locations. More than half of those have occurred since 1988. From 1990 to 2000, there were 118 wars that killed approximately six million people. In 1999, more than two thirds of armed conflicts had lasted more than five years and “almost one third had lasted more than 20 years.” Twentieth-century wars alone killed approximately 140 million people, both civilians and combatants.

As communication and transportation technologies make it easier for humans to move into outer space, will this record of conflict and war spread from Earth beyond our planet? Since Earth is the only planet known (by Earthlings, anyway) to have sentient life at this time, can and should Earth’s many nations agree now to rule out the use of force in outer space? If so, how can and should that be done?

**History and Current Events**

*Definition of Space and History of Human Exploration*

To understand the debate about preventing an arms race in outer space, it is necessary to define outer space and understand the history of its exploration and use by humans. However, there is no internationally-accepted definition of “outer space.” What states have agreed is that each country has sovereignty over its own “air space,” and that each county’s air space extends 12 miles *laterally* beyond its borders (even if it overlaps with the air space of other states). This is the same way that a country’s “territorial waters” are determined. Each state has

---

1 This background guide was written by Karen Ruth Adams, faculty advisor, with contributions from John Schiltz (2006). Copyright 2016 by Karen Ruth Adams.


5 Adams, “The Causes of War.”
sovereignty over the water and submerged and continental shelf for 12 miles beyond its coastline. Beyond that are the “high seas,” which, according to the Law of the Sea, are for the use of all mankind.6

The problem with this approach to defining “air space” is that it does not address the vertical dimension. States have never agreed how far up “outer space” begins. Even scientists are not sure where to draw the line because the Earth’s atmosphere does not suddenly end but just becomes thinner and thinner the higher one goes.

As a result, although there is a general consensus that outer space begins at the point where it is possible for objects to orbit the Earth, there are different ideas about where this point actually is. Moreover, where it is depends on prevailing technology. This is why the US State Department has argued that it would be counter-productive to define in concrete terms, such as miles, where outer space begins. According to the State Department:

… [O]ur position continues to be that the Legal Subcommittee should not take on this issue until practical problems have been identified so as to make it absolutely necessary to do so. … Whatever definition or delimitation were ultimately agreed upon would by its nature be arbitrary at worst, or, at best, be constrained by the current state of technology. For example, technological advances have increased the height at which aircraft can sustain flight, while they have decreased the height at which the orbital flight of space vehicles is possible.7

If we use the scientific definition of outer space as the point where it is possible for objects to orbit the Earth, we can trace the history of human exploration of outer space by reviewing the earliest objects and people to be put into orbit.

The first man-made object to completely orbit the Earth was the Soviet satellite, Sputnik, which the Soviet Union launched in 1957. It was about “twice the size of a football” and orbited the Earth for 22 days, taking about 96 minutes to complete one cycle. In 1958, the US followed with the Explorer satellite.8 At the time, what was most significant about these launches was that they showed that each country had the capability to fire intercontinental ballistic missiles at the other. This took the terrestrial nuclear arms race, which began with the US development and use of nuclear weapons in 1945, to a new level.9

Since 1957, satellites have become important in their own right. About 1,300 active satellites currently orbit the Earth, photographing the planet and the universe, and receiving and beaming signals for everything from radios, cell phones, computers, and televisions to telescopes, weather stations, navigational equipment, and military surveillance.10

The first human to enter outer space and orbit the Earth was the Russian pilot Yuri Gagarin in 1971. In 1965, Alexie Leonov, a Russian, was the first person to float or “walk” outside of a spacecraft. The first person to walk on a celestial body other than the Earth was the American Neil Armstrong, who walked on the Moon in 1969.


Montana Model UN
High School Conference

Armstrong characterized this event as “one small step for man, one giant leap for mankind.”

Since 1969, Russia, Japan, China, and India have each conducted their own exploration of the Moon. In addition, Russia, the US, Japan, and the EU have explored Venus, and 13 countries have agreed to collaborate to explore Mars. In August 2012, a NASA rover named Curiosity landed on the surface of Mars, carrying instruments designed to examine the past or present habitability of Mars. Looking to the future, Russia, the European Space Agency, India, Japan, and the US all have plans of further exploration of Mars, with goals of returning material to Earth and continuing the search for signs of previous life. North Korea is also advancing its space capabilities. It launched a space launch vehicle (SLV) into the atmosphere in February of 2016 and has built up its ballistic missile system capabilities despite strong international pushback.

Since 1998, 17 countries have participated in the construction of, experiments at, and explorations from the International Space Station (ISS), which is about the size of a football field. The space station is composed of labs built by the North American Space Agency (NASA), Russia, the European Space Agency (ESA), and Japan. It is manned by a crew of up to 6 scientists and other individuals (including tourists), who are shuttled back and forth in Russian spacecraft (now that the US has ended its space shuttle program). The ISS has been continuously occupied for 15 years and 257 days since the arrival of Expedition 1 on 2 November 2000, the longest continuous human presence in space. This was not the first space station to be created, but it is the largest to date and the first to involve extensive international cooperation in an effort to share costs. As of July 2016, 222 individuals from 17 countries had visited the space station, including Mark Shuttleworth, a South African businessman, who became the first African in space in 2002.

At the 10th anniversary of the ISS, Alan Thirkettle, the ISS Program Manager for the European Space Agency, remarked on the high level of cooperation that the 16 participating states have achieved, stating that


Sixty years ago, people in Europe were fighting one another. Now, they’re working together, working on spacecraft and space stations. Two decades ago, the Cold War was still going on and here we are working with the Russians, the Americans, the Japanese, the Europeans, everyone working together. It seems a far better thing to be doing than what we were doing 60 years ago.  

Since the Sputnik launch, outer space has also become a realm for corporate research and investment. In 2006, Bigelow Aerospace, based in Nevada, launched the first private space station or habitat, which it called Genesis I. Its plan is to lease space to corporations and others interested in research and travel, but only after demonstrating the long-term viability of such a structure. It remains operational and in orbit today, unlike its sister project Genesis II, which is no longer operational but remains in orbit. In more recent developments, a company from Luxembourg sent the first ever privately funded spacecraft to the moon in October of 2015.  

The Potential for and Problems of an Arms Race in Space  

Despite the cooperation that has emerged for scientific and research purposes, some scholars still suggest that states are likely to develop weapons in space in the future, and that this will likely result in an arms race in space. This idea rests on three premises. First, they point to the fact that all technologies (e.g. airplanes and nuclear technology) have eventually been adopted by states as weapons. States, according to this perspective, will always seek to use new technologies, including technologies that allow for weapons in space, for military purposes.

Second, they argue that any state that initiates the process of weaponizing space will have a military advantage over countries that wait to weaponize. The use of weapons in space, from a military standpoint, would provide several advantages. One would be the ability to deploy weapons to any location in the world. This could be used for offensive purposes, such as using weapons on a distant state, or for defensive purposes, such as using anti-ballistics missiles (ABMs) to protect one’s state from attacks that originate in space or on the Earth. A second key advantage would be the ability to more easily disable other states’ space-based military technology. This could seriously debilitating other states’ military technology, including non-space technologies that rely heavily on space-based infrastructure. The US military, for instance, uses satellites for nearly all of its reconnaissance, communication, and navigation capabilities on Earth. An attack on its satellites would seriously cripple the US military in these areas. In this case, the threat of potential attacks from those who have weaponized space would drive other states to develop their own weapons programs. Some scholars thus suggest that the US in particular is likely to seek this advantage, followed by China in response to the US’s actions.

Third, scholars have suggested that the US and China will likely see space as a final space for competition in the future. Hence, just as the USSR and the US competed for military dominance and territorial control during the

---

21 The European countries participating in the ISS under ESA are Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, Spain, Sweden, Switzerland and the United Kingdom. NASA, “Nations Around the World Mark 10th Anniversary.”


cold war, the US and China may see space as a ground for competition in the future. This means they will not only develop weapons in space, but may instigate an arms race in their efforts to compete and deter one another.  

While the loss of life or damage that could occur if a state using space-based weapons against targets on Earth represents one potential danger of arms in space, the use of weapons (located in space or on Earth) against targets in space would also have a detrimental impact on societies. Even if states were to attack satellites for military purposes, debris from destroyed satellites could strike those used for civilian purposes. Further, many satellites are now used for both civilian and military purposes. Thus, attacks on satellites would disrupt major industries that have become increasingly reliant on satellite technology for communication and GPS, such as “telecommunications, banking and finance, [and] energy.” Finally, some suggest that an arms race would “destabilize the international system, and lead to war on earth.” Hence, according to experts, preventing an arms race in outer space constitutes a vital factor in not only preventing conflicts between space-based military structures, but also on Earth.

Fears over anti-satellite (ASAT) military technology increased in 2007 when China used anti-satellite weapons to destroy one of its own defunct satellites. While China has supported international agreements on limiting the weaponization of space since then, some still suspect that China, as well as the US and Russia, are continuing to develop methods for disabling satellites. This could be achieved via conventional weapons, such as the missile China used in 2007, as well as cyber attacks, radio signals that can jam satellite communications, or even destroying components such as antennas or optics with paint or lasers. In fact, China already has ground lasers and satellite jamming technologies. In fact, in 2006, China used a laser to “blind” a US satellite. In recent years, the US has reacted to the potential of space weaponization by other states by investing $5 billion into space defense programs.

**Previous Committee Work on this Topic**

Because space exploration began during the Cold War arms race, and could not have occurred without improvements in missile technology, people worldwide worried that it would lay the foundation for a new kind of war in which the Earth would be just one battleground. Thus the UN General Assembly passed its first resolution on the topic in November 1957, just one month after Russia’s first Sputnik launch. In Resolution 1148, the GA urged “the joint study of an inspection system designed to ensure that the sending of objects through outer space shall be exclusively for peaceful and scientific purposes.”

In 1959, in Resolution 1472, the GA established the Committee on the Peaceful Uses of Outer Space (CPUOS). The committee, which meets annually, now has 77 UN Member States. The GA charged CPUOS with studying measures to promote peaceful use of outer space.

---


30 Billings, “War in Space May Be Closer Than Ever.”


32 UN Office for Outer Space Affairs (UNOOSA), “United Nations Committee on the Peaceful Uses of Outer Space:
In 1961, the GA asked states to report all launches of objects into outer space to the UN Secretary-General. In 1976, the GA adopted the Convention on Registration of Objects Launched into Outer Space. Since then, 62 states have joined the convention and regularly submit reports of launches originating in their territories. Since there are 193 UN Member States, this is quite a small number of participants. However, many states, especially developing countries, have no space program. According to UNOOSA, 92% of all satellites, probes, landers, manned spacecraft and space station flight elements launched into Earth orbit or beyond have been registered with the Secretary-General since the convention.

In 1967, the GA adopted the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies. This treaty, generally referred to as the Outer Space Treaty, prohibits the placement of nuclear weapons and other weapons of mass destruction (such as chemical and biological weapons) in space. However, it does not prohibit the basing of conventional weapons there. States that ratify the Treaty agree to the following provisions:

- the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries and shall be the province of all mankind;
- outer space shall be free for exploration and use by all States;
- outer space is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means;
- States shall not place nuclear weapons or other weapons of mass destruction in orbit or on celestial bodies or station them in outer space in any other manner;
- the Moon and other celestial bodies shall be used exclusively for peaceful purposes;
- astronauts shall be regarded as the envoys of mankind;
- States shall be responsible for national space activities whether carried out by governmental or non-governmental entities;
- States shall be liable for damage caused by their space objects; and
- States shall avoid harmful contamination of space and celestial bodies.

As of July 2016, 104 UN Member States have ratified the Outer Space Treaty, 25 states have signed but not ratified it, and 64 states have never even signed it.

“Preventing an Arms Race in Outer Space” is a regular item on the GA’s agenda, and typically at least one resolution per year has been passed on the topic in recent years. In 2010, the resolution “was passed by a recorded vote of 178 in favour to none against, with 2 abstentions (Israel, United States).” In addition a second resolution on transparency and confidence-building measures in outer space activities “was adopted by a recorded vote of 183 in favour to none against, with 1 abstention (United States).” In January of 2013, the GA adopted “International

UNOOSA, “History and Overview of Activities,”

33 UNOOSA, “Convention on Registration of Objects Launched into Outer Space,”

34 UNOOSA, “Convention on Registration of Objects Launched into Outer Space.”


Cooperation in the Peaceful Uses of Outer Space (RES/67/113), which noted the concern regarding an arms race and that spacefaring states should actively contribute to the goal of preventing one.\(^\text{38}\)

The issue of transparency is especially important for less-developed countries, who do not have the capabilities to participate in space exploration and therefore have no way of monitoring the actions of more-developed countries. In the resolution on that topic, the GA called on the UN Secretary-General to establish an international working group with “equitable geographic representation” to make recommendations on how the countries that are active in outer space can be encouraged to report more fully on their activities.\(^\text{39}\)

At the CPUOS annual meeting in June 2011, some delegations expressed support for a draft treaty that Russia and China presented in 2008 to the UN Conference on Disarmament, which is the UN body that generally drafts disarmament treaties. Instead of allowing states to base conventional weapons in outer space, then trying to limit how many can be based there (as the recurring resolution on “preventing an arms race in outer space” suggests), the proposed treaty would ban the basing of weapons of all kinds. In addition, it would make it illegal for states or other actors to shoot down peaceful objects based in outer space, such as satellites and space stations.\(^\text{40}\)

Because no conventional weapons are currently based there, Russia and China argue that this treaty would not inconvenience anyone. However, under the terms of their proposed treaty, it would not be illegal to shoot down weapons that transit through space, such as inter-continental ballistic missiles or anti-ballistic missile (ABM) interceptors. Because the US is trying to develop ABM technology – and because it considers ABM technology to be defensive, not offensive in nature – this could be a sticking point in getting the US and countries that have agreed to have US ABM sites on their territory to agree to Russia’s and China’s proposed treaty. However, Russia and China say they are open to negotiations on this matter, and that their primary aim is to avoid a new arms race in space that could be more costly and deadly to human life than the Cold War nuclear arms race ever was.\(^\text{41}\)

Clearly, the U.S. and E.U. have been at odds with Russia, China, and others with how to most effectively approach this topic. In 2015, the U.S. supported a European-led initiative that would establish norms for proper behavior through the creation of a voluntary International Code of Conduct for Outer Space. A draft of the code was introduced to the UN in July 2015, but subsequently blocked by Russia and China.\(^\text{42}\) An opposing draft treaty from Russia and China pushes for the ratification of their legally binding treaty completely banning space weapons, a treaty that U.S. officials and outside experts have repeatedly rejected as a “disingenuous nonstarter.”\(^\text{43}\)

Despite this disagreement, GA-1 approved a draft resolution in November 2015 that urged “an early commencement of substantive work to prevent the placement of weapons in outer space.”\(^\text{44}\) The draft resolution

---


39 UN General Assembly, “General Assembly Notes New Strategic Relationship.”


42 Billings, “War in Space May Be Closer Than Ever.”

43 Billings, “War in Space May Be Closer Than Ever.”

stressed that other measures may be required to ensure that weapons are not placed in outer space and encouraged all states, specifically space-faring nations, to upholding a commitment not to be the first to do so. The draft was approved with 122 in favor to 4 against (Israel, Ukraine, United States, Georgia) and 47 abstentions.45

Conclusion

Much remains to be done to define the terms of the debate about weapons in outer space, much less decide how and by whom they should be regulated. As technology advances and more and more satellites enter the atmosphere, it is crucial that we find a diplomatic way to monitor activities and ensure safety for the citizens of Earth. What can and should the GA do to address this challenge? As you research your country’s position on this issue, consider the following questions:

- Does your country have a space program? If so, what are its accomplishments and challenges? If not, why not?
- What is your country’s position on disarmament, both in general and in outer space? Has it signed and ratified the Outer Space Treaty and Convention on Registration of Objects Launched into Outer Space? Why or why not?
- How much does your country spend on the military, and what kind of weapons does it have? In what military conflicts is it currently involved?
- Should the GA encourage member states to work with CPUOS and the Conference on Disarmament to draft a new treaty banning or restricting weapons in outer space?
- In such a treaty, how should “outer space” and “weapon” be defined? With regard to the former, should there be a particular distance from sea level that is specified to be where outer space begins? With regard to the latter, how should the treaty deal with “dual use” technologies such as satellites that can be used to target weapons? Similarly, should it adopt the Russian and Chinese idea that weapons should be outlawed only if they are based in space and not if they pass through?
- Should conventional weapons (like nuclear and other weapons of mass destruction, which are banned by the Outer Space Treaty), be completely banned from outer space, or should conventional weapons simply be limited?
- Who should enforce a ban or other limitations? Should that be the role of the Security Council or of some other body?
- What can be done to minimize the gap between developed and less-developed countries in the peaceful exploration and use of outer space, as well as in the knowledge of any militarization that may be occurring?
- What can be done to ensure that the Moon and other celestial bodies do not become new locations of conflict?

Recommended Reading


This recent article lays out the debate between the US, on the one hand, and Russia and China, on the other.


This article provides great insight into the issue of weaponizing space. It includes a historical overview of the problem, current points of contention between the US, Russia, and China, as well as the potential dangers of space weaponization.


This page, though slightly outdated, has a good compilation of articles related to preventing an arms race in space. There are links to UN documents, relevant news articles from reliable sources, and more.


Reaching Critical Will is a non-governmental organization affiliated with the Women’s League for International Peace and Freedom, which has long been active in disarmament efforts. This site is a good source of information on the particular proposals that various states and organizations prefer.


SIPRI is a think tank that focuses on military and security matters. These links will take you to recent articles by SIPRI researchers on space weapons. On the SIPRI site you will also be able to find information about your state’s military spending and military conflicts.


This report (especially pages 6-10) provide an excellent summary of recent debates about whether and how a new treaty on preventing an arms race in outer space or preventing the placement of weapons in outer space should be drafted and adopted. It is a good place to get an overview of the issues.


This article provides an overview of the most recent draft resolution passed on the topic by the GA. It includes the full overview of the proceedings and summarizes each participating state’s remarks and opinions on the disarmament aspects of outer space.


UNOOSA is the part of the UN secretariat or bureaucracy that assists the GA and Security Council with their efforts to maintain peace and security in outer space. The UNOOSA website is a good source for background information and recent events. In addition, you can find out which of the outer space treaties your country has signed (see link in footnote 22).


This article by a British disarmament scholar does a good job of explaining that much of what is already in space has “dual use” aspects. As a result, space is already militarized. The question is how close developed countries are to taking the next step and basing weapons themselves there.