

## **Control agreements on space weapons and other arms**

Throughout human history, technological advances have given rise again and again to new weapons systems. And, very often, the new developments have led to a discussion on how such weapons can be limited and prohibited, i.e. on arms control and disarmament. This occurred in response to the crossbow in the Middle Ages, the submarine after World War I or the atom bomb after 1945. Although it has rarely proved possible to ban the new weaponry, agreements between states have more often at least succeeded in containing their proliferation.

After land, water and air, space became a focus for military use in the 1950s, driven by the rivalry between the nuclear superpowers, the United States and the Soviet Union. But right from the start, research into military uses was accompanied by efforts to control arms in space. In response to new technological capabilities, such as the potential development of “killer satellites” and other anti-satellite weapons, growing importance has been attached to the conversation on the need to agree space arms control for the 21st century.

Moreover, as advanced technologies give rise to other novel weapons, proposals for limitations and bans have emerged here, too. There is particular concern about unmanned military systems such as combat drones, vehicles and robots. Since these technologies, just like space weapons, are still in their infancy, what is at stake here is primarily “preventive” arms control.

### **Space weapons—A definition**

Space weapons include, on the one hand, armed systems like weaponized satellites stationed in space and armed orbital gliders circling the Earth for long periods. Such systems may be designed for space-to-space attacks and/or space-to-Earth attacks. On the other hand, there are Earth-to-space missiles, which must also be classified as space weapons since they could be used against satellites.

Land-launched weapons like intercontinental ballistic missiles that are directed at targets on Earth are, by contrast, not normally classed as space weapons, although they do pass through space. Nor do passive systems, primarily satellites, with military uses in space count as space weapons, even though they play a key role in military surveillance, communication and navigation.

### **Militarization of space and arms control**

In 1957 there was just one satellite in space; today there are more than 1,100 active systems. These are joined by some 20,000 satellites and satellite components that are no longer operational yet are orbiting our planet. Space plays an ever more important role in people’s everyday lives. Mobile phones, the Internet, GPS, climate monitoring, and weather forecasting are only a few examples of services provided via satellite.

Militarily, satellites have certainly become increasingly important. Thanks to highly sensitive optical sensors and rapid data transmission, pictures can be sent in real time to military command centres or directly to forces in the field. Almost all communications with troops now involve

satellites. And it is also with their help that precision-guided munition is navigated and directed to its targets. Monitoring from space in order, for instance, to locate an enemy missile launch is also inconceivable without satellites.

Twelve countries have so far successfully sent satellites into space from their own launch pads: the Soviet Union (Russia), the United States, France, Japan, China, United Kingdom, India, Israel, Ukraine, Iran, North Korea and South Korea. Other countries, such as Brazil, are about to complete their own launching facilities. Satellites from more than sixty countries are currently orbiting the Earth. The United States is, however, far and away the dominant and most advanced space power. Since the United States is the principal superpower with its armed forces engaged in global operations, it is particularly reliant on space systems. Half of the roughly 170 purely military satellites currently in orbit are US-American. However, Russia, China, Germany, France and other countries also operate satellites for military purposes.

Responding to the prospect of a militarization of space, the first space arms control efforts began as early as in the 1950s. The Partial Nuclear Test Ban Treaty of 1963 outlawed nuclear tests not only under water and in the atmosphere but also in space. The Treaty was jointly proposed by the United States, the United Kingdom and the Soviet Union.

Four years later, after numerous supporting resolutions by the UN General Assembly, the international community succeeded in agreeing the Outer Space Treaty. This document insists that space should be open for peaceful use by all nations. It bans the stationing of weapons of mass destruction in space and outlaws military tests and military installations on any celestial body. The background to this partial breakthrough in arms diplomacy is the shared insight that the potential harm caused by weapons of mass destruction in space to international stability and world peace outweighs the potential military benefits of such weapons. Plans by the Joint Chiefs of Staff to have the deployment of smaller nuclear weapons exempted from the outer space ban were rebuffed by the US administration of the day.

The Outer Space Treaty is the most important international law agreement for preventing a militarization of space. However, it does not explicitly ban the detonation of nuclear weapons in space, which could be a technique for intercepting missiles. Both the United States and the Soviet Union/Russia have done the research and development for this technique and are capable of deploying it. Nor does the Treaty ban missile trajectories that pass through space carrying a conventional warhead or a weapon of mass destruction. Finally, there is no provision to prevent conventional weapons and military surveillance, communication and navigation satellites from being stationed in space.

In view of rapid technological progress in this field, the concern here is that active weapon systems will be placed in space, ready to attack other space objects, missiles or even targets on Earth. Stationing weapons in space would clearly be a major step in the militarization of space. The threat of military rivalries being fought out in space could no longer be ruled out.

This has been the backdrop to demands voiced over many years by the UN General Assembly for a treaty to prevent the stationing of active weapon systems in space. In 2008, Russia and China presented such a draft treaty to the UN Conference on Disarmament, a Geneva-based

negotiating forum. Under its provisions, the states parties would undertake not to station any weaponized objects in space or on other planets and would renounce all violent acts against space objects. The United States, however, rejected a comprehensive and binding arms control agreement for space. The Obama Administration preferred, partly under strong domestic pressure from Republicans in Congress, to keep America's hands free—especially with a view to developing missile defence systems—and avoid any weakening of their supremacy in space.

Obama was at least willing to negotiate rules of conduct in space, unlike his predecessor George W. Bush. A proposal on this has been drawn up by the European Union. It looks to voluntary commitments on information exchange and transparency in the hope that confidence-building measures will ensure the peaceful use of space without an explicit ban on space weapons. By the time of writing, talks on this initiative had not yet produced any results.

### **Arms control for novel unmanned weapon systems**

Discussion and criticism have also accompanied the increasing deployment of combat drones by the United States and the weapons R&D on other unmanned systems (vehicles, robots). The main concern is that unmanned systems will impact negatively on peace and security policy, especially if they are also designed for autonomous decision-making. Such unmanned systems could lower the policy threshold for ordering military attack because there is no risk to the lives of one's own personnel. German peace studies experts have called for combat drones to be internationally shunned for this reason and outlawed under international law, a position outlined in the Peace Report 2013 ("Friedensgutachten 2013"). International experts have also formed an "International Committee for Robot Arms Control" to demand the prohibition of unmanned weapons and advocate control agreements specifically for these systems. In 2014, the UN Human Rights Council placed on its agenda the issue of autonomous "killer robots", i.e. robots programmed to make automatic firing decisions. Sweden has called for a ban on the testing of such weapon systems.<sup>1</sup>

### **Sources and further information**

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<sup>1</sup>. <http://warpp.info/en/m7/articles/m7-04>

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