



# The arms race of the space powers: Militarization of space and space defense strategy



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# INTRODUCTION

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Since the 1950s, the conquest of space has been an opportunity for states to develop and assert themselves. As an issue of development and power, the race to conquer space increases rivalries and results in a recomposition of the world's geostrategic balance.

During the cold war, space becomes the new theater of confrontation privileged between the United States and the USSR, each seeking to prove its superiority by going faster and further in space exploration. But, beyond the question of prestige, the two powers develop an interest for the strategic aspects, notably in the military framework, that space offers. In this space race appears the term of "militarization of space", which designates the development of weapons and military techniques in space. That is to say, to use space means for military purposes, notably the placement in orbit of non-aggressive surveillance and intelligence satellites for espionage. This term should not be confused with "weaponization of space", which refers to the deployment of weapons in orbit that can reach targets on Earth or in orbit. This is not a simple support system for military operations but an aggressive system.

The militarization of space thus begins almost at the same time as the origins of the space conquest. However, as the Cold War ended and the geopolitical context changed, new states and private actors emerged to take part in the conquest of space. The XXIst century is thus marked by a renewal of instabilities in a context where each State tries to become a real space power. The multitude of actors and the advent of new and more efficient technologies represent a geostrategic revolution in a context where security challenges are numerous. States are developing real space doctrines and now consider space as the fourth domain of military actions, after the land, sea and air domains, and wish to integrate their space capabilities into military operations, prolonging land conflicts. All this, in order to ensure their power and autonomy.



# Space: a new global strategic issue

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## *A liberal legal framework*

In 1967, the Space Treaty was drafted, which enshrines the principle of freedom of exploration and use of outer space and defines it as "the property of all mankind"<sup>1</sup>. This space is therefore free of access and use, unlike airspace whose complete and exclusive sovereignty depends on the underlying State. The space is thus not delimited because there is no political consensus concerning it. The disputed area is between 80km and 120km above sea level and is considered the boundary between the atmosphere and space.

Any object that has made at least one complete orbit in this zone is considered as space. These conditions leave to the States all their autonomy to carry out space activities. This legal regime guarantees the freedom of scientific research to all States and no space application is *a priori* forbidden. The freedom is only limited by the obligation to respect the freedom and interests of all States<sup>2</sup> and international law. Therefore, occupying space does not allow the establishment of a sovereign right for the benefit of a State. Each State has equal access and sharing of radio frequencies, and this is ensured by the International Telecommunication Union.

However, this principle of non-appropriation of exo-atmospheric space is now being questioned. Some countries, such as the United States, Luxembourg and the United Arab Emirates, consider that this principle does not apply to the extraction of celestial bodies and have adopted national laws authorizing their private exploitation. Moreover, international law affirms that space must be used only for peaceful purposes. However, space activities are not prohibited. The Space Treaty permits the militarization of Earth's orbits provided that weapons of mass destruction are not deployed. And, according to the United Nations Charter, the use of force is also prohibited.

Therefore, the weaponization of space is prohibited, but not the militarization that consists in placing in orbit non-aggressive satellites for military purposes (such as intelligence, navigation or telecommunication satellites). Thus, the space environment has been used since

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<sup>1</sup> Treaty of 27 January 1967 on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies in Outer Space (Space Treaty), Article I.

<sup>2</sup> Space Treaty, Article I, [https://fedlex.data.admin.ch/filestore/fedlex.data.admin.ch/eli/cc/1970/87\\_90\\_90/20050316/fr/pdf-a/fedlex-data-admin-ch-eli-cc-1970-87\\_90\\_90-20050316-fr-pdf-a.pdf](https://fedlex.data.admin.ch/filestore/fedlex.data.admin.ch/eli/cc/1970/87_90_90/20050316/fr/pdf-a/fedlex-data-admin-ch-eli-cc-1970-87_90_90-20050316-fr-pdf-a.pdf)



the years 1990-2000 by the armed forces to support their operations and to contribute to freedom of action in the land, sea and air environments.

On the other hand, space activities are only subject to the jurisdiction that implies their connection to a State or to an international organization. The modalities of this connection therefore differ according to the rules and the States that have a conventional obligation to supervise their space activities. However, this leads them to adopt regulatory mechanisms that are quite different from one another, allowing them to proliferate their space activities, in particular for military purposes.

Thus, access to space is governed by a specific legal framework guaranteeing all States the freedom of exploration and exploitation. However, this freedom of access and action can be compromised because the *New Space*<sup>3</sup> upsets the existing balances, and the innovations it brings quickly change the criteria that found space power.

### *New perspectives and opportunities*

Originally, the space sector was reserved for a few large nations and their space agencies. But the *New Space* technologies open the field to new opportunities, but also to new threats. We are entering a context of strategic and industrial competition where the opening of space to new actors and the extension of the scope of space technologies compromise the freedom of access and action in space.

Born in the United States, the *New Space* decompartmentalizes the traditional space domain and democratizes access to space. It calls for a change of method and adaptability. The actors of the *New Space* are mainly private investors, *start-ups*, universities or large companies. Today, these private actors play a key role in the development of the space economy and industry, which has become more flexible and innovative. This "new economy" is<sup>4</sup> developing new methods, technologies, engineering and equipment (such as electronics, 3D printing or artificial intelligence) and is based on a new approach integrating increased risk-taking, accelerated decisions and tolerance of failure as a factor of progress, allowing the emergence of commercial constellation projects of several thousand objects. These constellations open new

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<sup>3</sup> "Militarization of Space: Issues in the Age of New Space," SpaceLaw, January 6, 2020, <https://www.spacelaw.fr/militarisation-de-l-espace-les-enjeux-a-lerre-du-new-space>

<sup>4</sup> Defense Space Strategy, 2019. p.22,

<https://www.defense.gouv.fr/content/download/563618/9727385/Strategie%20spatiale%20de%20defense%202019.pdf>



perspectives and opportunities in the field of observation, data transmission and electromagnetic eavesdropping.

As a result, the number of satellites in orbit is increasing, giving much greater importance to surveillance issues and space traffic management. The potential offered by the *New Space* is boosting the space sector and new players can acquire satellites and have them put into orbit by commercial operators.

Thus, the advent of the *New Space* upsets the balance of power. This evolution presents risks for the continuation of space activities in complete safety, in a context where competition is increasing and space powers are multiplying. In this space race, the cohabitation between the new players and the historical players risks generating new conflicts.

### *An increasingly unstable future*

Space powers are therefore trying to evolve their space capabilities. Originally, the main function of these capabilities was to support security activities on Earth. But today, it is necessary for them to bring complementary means to their land, sea and air capabilities and to move to security missions for activities in space.

The proliferation of satellite launches into space is becoming a concern, and it is becoming necessary to develop new rules of behavior and transparency in space and to have them adopted by all space powers (on the model of the Nuclear Non-Proliferation Treaty, for example). The aim would be to prohibit aggressive and destructive actions, but also to create an international space security service and to ensure that these rules are respected.

Indeed, the creation of the *Space Force* by the United States and the tests of anti-satellite weapons by several countries prove that exo-atmospheric space is on the way to becoming the new domain of armed struggle for the preservation of the strategic interests of the great space powers. These powers will want to unite around offensive and defensive means of action in order to obtain a certain capacity for autonomous analysis of the situation and action concerning crises on Earth. In the offensive means of action, it would be a question of being able to put out of service the essential capacities of the enemies, in particular by jamming telecommunications, by blocking the positioning-navigation-dating systems (PNT) or by blinding observation satellites.



Space is becoming the new theater of confrontation between the great powers. Indeed, a space power worthy of the name must develop autonomous means of knowledge and analysis of the space situation, and must be able to dissuade any hostile action. The main space powers are already preparing for this eventuality and are developing their space doctrine accordingly.

Our contemporary world is marked by a permanent instability of relations between States and by a strong evolution of geostrategic situations leading to permanent confrontations. And space does not escape this reality. On the contrary, it is the new stake and vector of these rivalries.

## The emergence of a new theater of confrontation

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### *Increased competition between space powers*

In a rapidly changing geostrategic context, access to space has become the essential capability for a sovereign country. But mastering space technologies is useless if the State does not have autonomous means to develop its military space capabilities. And for that, it must become a real space power in order to protect its space activities and identify threats. A real competition in space has thus been set up between the States which follow the same goal: to become one of the greatest space powers.

The United States leads this ranking. It has all the necessary space capabilities to support military operations and space-based deterrence capabilities. These capabilities are accompanied by a comprehensive body of doctrine governing their employment and coordination for the benefit of ground operations, space surveillance, and protection of space systems from threats. With the creation of its *Space Force*<sup>5</sup> on December 20, 2019, and its *Space Power*<sup>6</sup> doctrine in June 2020, the United States is the only country to have made its space force a separate and independent component of its military. This demonstrates the importance they give to space for the functioning of their society and the conduct of military operations. In its doctrine, the United States depends on space capabilities. It is therefore necessary for them to know precisely the threats to their satellites and to be able to act in space in order to oppose an adversary. This

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<sup>5</sup> President Trump, "We are going to have the Air Force, and we are going to have the Space Force - separate but equal," *National Space Council Press Conference*, June 18, 2018.

<sup>6</sup> *Space Power, Doctrine for Space Forces*, Space Capstone Publication, *Spacepower* (SCP), Headquarters United States Space Force, June 2020, [https://www.spaceforce.mil/Portals/1/Space%20Capstone%20Publication\\_10%20Aug%202020.pdf](https://www.spaceforce.mil/Portals/1/Space%20Capstone%20Publication_10%20Aug%202020.pdf)



requires intelligence and technology requirements to control combat in orbit and in other areas for satellite control such as cyberspace and the electromagnetic spectrum.

As far as Russia is concerned, it is showing a real desire to access this level in its desire to reconstitute a zone of influence in Eastern and Northern Europe, but also in the Arctic, which could become a confrontation zone in a context of international competition for the control of natural resources. On the other hand, China has been making a sustained effort for more than ten years and will soon catch up with the United States.

These two powers have a certain autonomy of access to space and most of the capabilities. However, they have not yet integrated space assets into traditional military operations. They are not yet autonomous in protecting their operational space systems and have not yet developed doctrines on the use of military space and on operations in space.

India has deployed most of its traditional space capabilities but has not yet concretely demonstrated its ability to integrate space into military operations. And Israel has developed a dual launcher, put an observation, listening and communications satellite into orbit, but still depends on the United States for alerts and PNT.

Concerning the European Union, we can note an interesting particularity. France, Germany and Italy have access to common space capabilities developed by the European Space Agency, which is financed by the States and the European Union, such as ARIANE for access to space, GALILEO for the PNT, COPERNICUS for observation, GOVSATCOM for telecommunications and SST for space surveillance

Then, there are space powers in their infancy that have only developed a few space capabilities and are dependent on other powers, such as Great Britain, Canada, Australia, New Zealand, Egypt, Brazil, Peru, Algeria, Ethiopia and Morocco. The United Arab Emirates, on the other hand, have an ambitious space policy, as do Iran and North Korea, which only invest in military capabilities but do not yet have a truly operational launch system.

In this evolving operational context, strategic competition is reinforced. The competition between the power-states is increasing, which increases the probability of an inter-state military confrontation. States are more and more dependent on the space environment. They therefore represent a threat to each other and create new vulnerabilities which each one tries to face by reinforcing its means of action and by deciding to increase its power. Thus, the operational environment is becoming tougher and military capabilities are being strengthened. In the naval and air domains, the improvement of surveillance systems from space and the development of denial of access call into question the ability of states to enter a zone first and the freedom of action of their forces in theaters of operation. The capabilities of the





electromagnetic spectrum can also be challenged by adversaries who have developed jamming and decoy systems, or the proliferation of ballistic and cruise missiles that expose a state's forces to constant risk. Space itself is becoming a space of confrontation with various strategies and threats.

### *The new technological threats*

Today, the major space powers are developing new systems to enable them to protect their space activities and to carry out aggressive actions against those of their adversaries. The goal is to protect themselves against all unfriendly activities and demonstrations of force, such as ASAT launches, close-in maneuvers or jamming of positioning systems. States that have already proven their ability to access space could in the future become a threat of action in space and acquire a great deterrent force. These threats, which can range from neutralization to destruction, are based on technologies that will be able to target ground, communication, and space segments or associated software parts within a decade.

There are several types of threats<sup>7</sup>, including the cyber threat. These attacks on the software parts of the different segments of space capabilities are among the most likely threats. However, they require precise knowledge of the target's technical parameters, but can have the most serious irreversible effects, such as the loss of control of payloads or even the platform, which can reduce it to debris.

The electromagnetic interference threat acts mainly on navigation receivers (GPS/GALILEO) or on satellite communication receivers. The interference they produce is generally reversible but it is difficult to attribute its origin. These interferences are generally aimed at the communication means and the software parts of a satellite system.

Conventional threats are not specific to the space environment. They are generally sabotage, malicious acts on terrestrial infrastructures or targeting energy systems. This type of threat takes advantage of structural or human weaknesses in the ground protection of space systems.

Finally, the use of the kinetic threat could have dramatic consequences in some orbits (especially in single geostationary orbits) that would cause a lot of space debris. Orbiting services can also be diverted from their purpose and can be used as effectors capable of docking, docking, capturing, degrading or moving a satellite. These kinetic ASAT capabilities by missile

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<sup>7</sup> Defense Space Strategy, 2019. p.25



from the surface or air or by co-orbital capability are being developed by the United States, Russia, China and India.

The space environment is becoming the keystone of our operational capabilities in the face of these new challenges and threats. We are trying to evolve our deterrence, operations support and space capabilities.

## The integration of space capabilities into military operations

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In the new and increasingly threatening strategic context where the great powers are seeking to assert themselves, space has become the new front to defend and is becoming the keystone of the defense strategy of many countries. Space capabilities therefore represent a real strategic interest, especially in the military environment, with the aim of anticipating and planning maneuvers, spotting the enemy, guiding forces on the ground and communicating. It is a question of developing the capabilities of traditional domains for the benefit of military space operations.

Military space operations are all activities performed in, from, and to space to ensure the availability, tracking, safety, and security of national space capabilities and to maintain our freedom of assessment, access, and action in the space<sup>8</sup> environment. They operate space capabilities that provide services such as observation, listening, communication or PNT in support of military operations. They therefore cover actions taken in space to protect our assets and deter aggression.

Military space operations are organized around four functions, which in turn group certain types of space capabilities.

### *Support for space capabilities*

Space capability support ensures the deployment, implementation, and availability of space capabilities. Compared to the other functions described below, it has the most pronounced dual nature. Its main missions are to handle launch and stationing, launch pad operations,

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<sup>8</sup> Defense Space Strategy, 2019. p.39



maintain satellites in service and on station, and reconstitute capabilities when they are diminished or missing.

### *Knowledge of the spatial situation*

Space situational awareness (SSA<sup>9</sup>) is necessary for the exploitation of the space environment and the conduct of military operations. SSA is the foundation of military space operations. It addresses the need to assess the threats that adversary space systems may pose to satellites, territory, or deployed forces, to prevent the risk of collision between active satellites, and to coordinate with other space actors.

It complements the ESS<sup>10</sup> which provides information by monitoring and spatial trajectography. This allows the development of space situational awareness (SSA)<sup>11</sup>. All this requires capabilities that guarantee a country's strategic autonomy, because space observation is the main source of data for non-intrusive intelligence gathering, meets the needs of support to operations and the constitution of geographic data. Geospatial intelligence or GEOINT contributes to the autonomy of assessment and requires specific high-performance requirements for which defense has full sovereignty. Secondly, support to operations is provided by space imagery, which enables the pace of operations to be sustained in a non-permissive space. It enables mission preparation, targeting, damage assessment and environmental data. Finally, the constitution of geographical reference data is done thanks to digital geographical products (DTMs, orthoimages, hydrography, etc.). This quality of images and data is essential to reach a level compatible with their use in weapon systems.

Accurate assessment of an adversary's space order of battle is paramount, as is the assessment of land, sea and air arsenals. Today, commercial operator observation data meet military needs, but they must be complemented by data obtained from fully sovereign systems for very high strategic value issues.

### *Space support to operations*

Operations support is the implementation and exploitation of payloads embarked on a space platform. It contributes to joint functions, in particular intelligence, surveillance and reconnaissance (ISR),<sup>12</sup> which is possible thanks to electromagnetic eavesdropping from space.

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<sup>9</sup> *Space Situation Awareness*

<sup>10</sup> *Space Surveillance and Tracking*

<sup>11</sup> *Recognized Space Picture*

<sup>12</sup> *Intelligence, Surveillance and Reconnaissance*



This eavesdropping provides information on the electromagnetic radiation of terrestrial activities and thus allows to be informed on the adversary activities. This is a military specificity and its sovereign access guarantees the autonomy of access and data integrity. These new technologies are today in all weapon systems and have a central place in conflicts and crises. Their ability to collect electromagnetic data from space without regard to borders is an undeniable added value for monitoring an adversary's activity and provides an alert on events that were not anticipated. Today, the most powerful systems can precisely locate, track and detail emissions. This is essential data for the planning and conduct of military operations.

Support to operations therefore involves intelligence, surveillance of the geographical, physical and human environment, and communication using satellite communications (SATCOM)<sup>13</sup>. It enables deployed forces to communicate securely with the mainland and in theaters of operation, and to overcome distances and terrestrial relays. Indeed, space being the highest point of any terrestrial battlefield, telecommunications are the first military applications deployed. Telecommunication satellites are essential to military maneuvers because they provide the necessary range and security for the transmission of orders and reports.

Finally, one of the most important functions of operations support is positioning, navigation, and timing (PNT)<sup>14</sup>. Space-based PNT systems are more commonly referred to as the GPS system. In the 1990s, the GPS system provided the United States with a global navigation and precision strike capability. The USSR sought the same capability with its GLONASS system, but it was not operational until the early 2000s. PNT space systems are of strategic and tactical importance. The European Union, India, China, and Japan have invested in this area to provide their forces with capabilities that are essential to contemporary conflict. These powers have also embarked on the development of "navigation warfare" (NAVWAR)<sup>15</sup> to degrade their use on the battlefield.

Soon, new capabilities for the military will be available thanks to innovative technologies developed in this field for commercial applications, such as low-earth orbit constellations, in-flight connectivity, ultra-high-speed Internet of Things, communications encryption, etc. These military needs are covered by commercial capabilities and strictly regalian capabilities depending on the sensitivity of the information.

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<sup>13</sup> *Satellite Communications*

<sup>14</sup> *Positioning, Navigation and Timing*

<sup>15</sup> Jean-Daniel Testé, "La militarisation de l'espace : quels enjeux pour aujourd'hui et demain ?", Areion24 News, 8 April 2021, <https://www.areion24.news/2021/04/08/la-militarisation-de-l'espace-quels-enjeux-pour-aujourd'hui-et-demain/3/>



### *Action in space*

Action in space consists of maintaining freedom of access and action in space and discouraging and defeating third party activities, through passive and active measures such as prevention (diplomatic, media, economic or legal), resilience of space assets and defense in space of our space assets.

Today, outer space is considered the fourth domain of military operations, after land, sea and air. We are witnessing experimentation with anti-satellite weapons and the deployment of new potentially intrusive or even aggressive technologies in space. Since international regulations are not clearly prohibitive on this point, we can fear an increase in this type of military action in space.

These four military space applications are the core military space capabilities that are deployed and implemented today in support of a military operation by the world's major powers. However, some nuclear deterrent powers have gone further in their space assets and have developed anti-ballistic missile warning and nuclear explosion detection systems.

Anti-ballistic missile warning systems were conceived early during the Cold War. They are deployed by the major nuclear and space powers and have two main functions. The first is to detect and track tests of adversary ballistic missiles to determine their main characteristics (heat signature, range, flight parameters, maneuverability, etc.). The second is to detect the launch during crises or conflicts in order to identify the system, the aggressor country, the targeted area, and to prepare the means of protection and defense, to launch a response and to disseminate the alert to the population. Initially, this system was dedicated to the surveillance of the great powers, but today it is also used to monitor proliferating countries.

The nuclear explosion detection system has also been used by the major nuclear powers. It consists of deploying satellites equipped with sensors in space to detect and measure nuclear explosions. The initial objective was mutual surveillance to guarantee the transparency necessary for deterrence. This objective was completed by the surveillance of proliferating states. Today, it is also used to evaluate the consequences of accidents in nuclear power plants.

Thus, military space operations operate space capabilities that provide essential services (observation, listening, warning, telecommunications, PNT, etc.) in support of military operations. However, mastering these technologies is useless without an autonomous means of putting them into orbit. Therefore, the essential capability for a sovereign country is access to space, which represents a major factor of autonomy and power, particularly in the development of the deterrent force. Seven powers have therefore equipped themselves with an operational



launcher (United States, China, Japan, European Union, India and Israel), but the modes of organization and governance of space launch facilities differ from country to country. The situation in the world concerning the development of military space capabilities is very heterogeneous and evolving. There are different statuses depending on the capabilities developed and the operational use made of them. Currently, France is trying to become one of the great space powers of the world and has made a real doctrinal and capability effort. French ambitions in the space domain are explained and developed in its new Defense Space Strategy, published in July 2019.

## The French defense space strategy

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The use of outer space represents a geostrategic revolution in a context where security challenges are numerous. France has been using space for many years for strategic intelligence and support to land, sea and air operations. However, it is trying to evolve its governance of the space domain. In addition to its will to develop its space capabilities, France is developing a space doctrine through its new defense space strategy.

After land, sea and air, space has become the new military environment. This prolongs terrestrial tensions and conflicts, while offering new opportunities for the arms industry. And, in a framework where strategic competition is increasing, it must go further in its capabilities because of the new threats.

France wishes to define a new defense space strategy in three fundamental ideas in order to increase French strategic autonomy in space by protecting and defending its space activities. First, by reinforcing current strategic intelligence and support capabilities for military operations (observation, listening, telecommunications, electromagnetic, PNT, etc.) for the credibility of the French deterrent force. Then, by developing space situational awareness (SSA) capabilities to monitor activities in all orbits and detect unfriendly or even hostile acts. Finally, by developing the ability to defend oneself.

In this strategy, priority will be given to the development of SSA capabilities and their reinforcement on earth and in space to better assess threats and characterize observed activities. This first space defense capability will be developed to allow the armed forces to impose a peaceful use of space, to dissuade hostile and aggressive acts against national space systems and to be able to act to defend French space interests. France wishes to "*identify and*



*characterize unfriendly or hostile acts in the environment of our satellites, to continue the development of our means of support to operations, to protect our space assets and to discourage our adversaries from harming them,"*<sup>16</sup> said Florence Parly.

However, care must be taken not to call into question the peaceful and responsible use of space. France has stated that it wishes to respect the Space Treaty, which prohibits weapons of mass destruction. But, although this treaty clearly speaks of "*the use of space for the good of all peoples*" and "*for peaceful purposes*"<sup>17</sup>, "*this treaty does not exclude self-defense, nor does it prohibit militarization or weaponization*"<sup>18</sup>. France is therefore in line with the existing legal framework by advocating self-defense as described in the United Nations Charter. It is adapting the legal framework to better take into account the specificities of military space operations, the scope of which is expanding over the years. France will use small satellite constellations to improve its military capabilities and resilience in the field of observation, telecommunications and space surveillance, but also in mass data processing and artificial intelligence.

This strategic ambition is based on the renewal of the doctrine that is articulated around the four functions of military space operations listed earlier. In order to implement all this, France has created a new military space command. This is a turning point in the military strategy of France, which wishes to send a strong message to the international community. This space command is now integrated into the Air Force, which becomes the Air and Space Force. This initiative does not go as far as that of the United States, which has made the *Space Force* a truly separate and independent component, but it is evidence of a real French strategic reorganization. It is also announced in the 2019-2025 military programming law that "an additional impetus will be given to this ambition beyond the 3.6 billion euros already allocated to the space domain."<sup>19</sup> Indeed, 700 million euros by 2025 are added to the 3.6 billion euros already allocated to space in the military programming law 2019-2025. The 2019-2025 military programming law, adopted by Parliament in June 2018, provides for 295 billion euros to be spent on defense. The President of the Republic's announced goal is to increase defense spending to 2% of GDP in 2025, or €50 billion per year, compared to €34.2 billion in 2018<sup>20</sup>. The objective for 2030 is therefore to have acquired a real capacity for action.

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<sup>16</sup> Florence Parly, during the presentation of the Defense Space Strategy, July 25, 2019

<sup>17</sup> Space Treaty

<sup>18</sup> Florence Parly, during the presentation of the Defense Space Strategy, July 25, 2019

<sup>19</sup> Defense Space Strategy, 2019. p.54

<sup>20</sup> Alain Refalo, "France participates in the militarization of space", published on March 13, 2021, <https://alainrefalo.blog/2021/03/13/la-france-participe-a-la-militarisation-de-lespace/>



We are witnessing a major turning point for the future of French forces and for France's ability to act in all environments and to preserve its strategic autonomy in situation assessment and decision-making. France considers outer space as the fifth domain of action (after land, sea, air and cyber) where it deploys its military strategy. It is therefore trying to give itself the means to achieve its ambitions and wishes to ensure that it will have autonomous and defensive means in space.





## Conclusion

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In conclusion, the space arms race is intensifying as the geopolitical climate changes. The liberal legal framework of access to space and its exploitation and the advent of the *New Space* are upsetting the balance that was in place since the Cold War. We are witnessing a geostrategic turning point as many powers are acquiring space capabilities. This strategic and industrial competition is increasing between the power-states, which increases the probability of an inter-state military confrontation. States are more and more dependent on the space environment. They evolve their space capabilities to become more powerful, which in parallel generates new threats. Faced with potentially hostile actions, access and action in space are essential to ensure its defense and autonomy.

Space capabilities represent a real strategic interest, especially in the military environment, in order to anticipate and plan maneuvers, locate the enemy, guide forces on the ground and communicate. The aim is to develop the capabilities of traditional domains for the benefit of military space operations. After land, sea and air, space has become the new military environment.

Moreover, France has understood this and is in the process of evolving its governance of the space domain. With the release of the Defense Space Strategy in July 2019, France is reaffirming its space doctrine and intends to develop its space capabilities with the aim of identifying any unfriendly acts, providing solid support to military operations, protecting its space assets and being sufficiently autonomous to defend them against any adversary.