

The Evolving Architecture of Space and Security in Europe

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While a small group of European countries led by France launched an observation system for intelligence purposes in the 1980's, Europe only started to take an interest in military space after the end of the Cold War in the 1990's.

Military uses of space encompass two broad categories. On the one hand, space assets can be used to support military operations on the ground. This trend, called "space militarization", started during the Cold War with the intensive use of Earth Observation (EO) and telecommunication satellites by the United States and the Soviet Union. The rise of satellite navigation applications in the early 1990's then allowed space to become a real "force multiplier" for military forces. On the other hand, space could become a war environment in itself, with space systems being targeted by so-called anti-satellite weapons (asats). The deployment of such weapons by the U.S. and the Soviet Union never materialized during the Cold War, but the evolution towards "space weaponization" has figured at the top of the international agenda in recent years. It was fuelled by the U.S. military space doctrine aiming at "space dominance" and the Chinese asat test of January 2007. While space militarization has been recognized by the UN ever since the 1960's and is today accepted by all countries, space weaponization now appears to most as a dangerous evolution and is the subject of several arms control and confidence-building efforts.

Today, Europe is active in both these areas. A number of military applications are developed either by European countries, or under the leadership of the European Union - the future beneficiary within the EU being the Common Security and Defense Policy (CSDP); EU member states also drafted a Code of Conduct (CoC) for Outer Space Activities, an original and key initiative to ensure stability in the space environment.

Today, Europe is taking initiatives both to prevent space weaponization and to develop space militarization. While national States remain the central players in this regard, the intergovernmental European Space Agency is increasingly involved in security-related activities and the European Union is showing growing political ambitions in this area.

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Due to its unique political nature, Europe features a complex governance and institutional set-up that shapes any development of space activities. Indeed, three different tiers of actors are now engaging in security-related space activities. While national states remain the central players, the intergovernmental European Space Agency (ESA) is increasingly involved in security-related activities and the European Union is showing growing political ambitions in this area as well. Europe's main challenge today is to transform this collection of dispersed, disparate and modest military space programs and space security policies into a coherent and integrated strategy, based on an adequate institutional architecture.

One first challenge is that European nation states wish to retain some degree of independence in the establishment of military means, thus complicating the emergence of a unified European approach to space militarization. As for the debate on space weaponization however, Europe is a newcomer, and it may be easier to develop cooperation in this field. Some claim that space could indeed be an area where European cooperation can ultimately foster feelings of European identity.

States Remain the Key Actors

The currently operational military space capabilities in Europe are almost all national ones, and there is little europeanization of this highly sensitive area yet. This is due mainly to sovereignty issues and to differences in national priorities regarding defense. Only a few European states are active in this field, and 99% of military space expenditures in Europe is concentrated in five countries¹. A number of EU member states show little interest in space and security because they lack the industrial and technological basis and the financial resources to build up national military space capabilities. France has been traditionally the most active player in this field, as testified by its recent White Paper on defense and national security which identified military space as a strategic priority². The country has had operational military capabilities in EO since the 1980's (SPOT, Helios, Pleiades) as well as satellite communication systems (Syracuse). Furthermore, it is the only actor in Europe developing capabilities in early warning (Spirale)³ and signal intelligence (SIGINT) (Cerise, Clementine, Essaim, Elisa)⁴. The other four nations focus exclusively on satellite communication and EO. The British Skynet, now in its fifth generation, is the oldest military COMSAT system in Europe. It was followed by SICRAL for Italy and COMSAT BW for Germany. The EO systems SARLupe for Germany, COSMO-Skymed for Italy were launched in the 2000 and the Spanish systems SEOSAT and SEOSAR are under development.

Besides these strictly national programs, a series of bilateral and multilateral cooperation endeavors emerged in recent years. At the bilateral level, initiatives focused initially on strengthening complementary capabilities (French-German agreement on the exchange of radar and optical data, ORFEO system between France and Italy). A further step was reached with the development of integrated bilateral military space programs. The best example is the French-Italian military satellite communication programs SICRAL 2 and Athena-Fidus⁵. Similar trends can be observed at the multilateral level, in the form of foreign participation to a national program (French Helios 2), or through negotiations to define a common European system for space-based reconnaissance and surveillance (MUSIS)⁶.

These cooperation efforts reflect both the positive potential of European approaches to military space and the challenges ahead. On the one hand, there is a growing consciousness among member states that the pooling of national military space capabilities is both

a political and a financial necessity. On the other hand, national considerations are still strong drivers in the field of defense and security. While the bilateral programs are running smoothly, national divergences are still blocking progress at the multilateral level, as shown by the difficult negotiations for MUSIS .

The maintenance of an industrial base also illustrates the permanence of national interests. Despite the creation of integrated European companies in the field of aerospace and defense, such as EADS or Thales Alenia Space, the industries manufacturing military space assets are still considered in a national perspective. As a consequence, considerations of national industrial policy add a further burden to any bilateral or multilateral negotiations.

The Reinterpretation of ESA's Mandate

Security applications were not initially covered by ESA's mandate, as the ESA Convention specifically stated that the work of the Agency should be done "for exclusively peaceful purposes"⁷. This strict non-military interpretation started to evolve after the end of the Cold War, along with a general redefinition of the concept of security in Europe. Shifting away from a narrow, state-centered definition of security focusing on military aspects, a broader understanding of the concept progressively emerged, taking into account global and multidimensional threats, such as humanitarian crisis or natural disasters. This semantic evolution allowed a reinterpretation of the word "peaceful" as "non-offensive" instead of "non-military"⁸. This development was officially endorsed at the ESA Ministerial Council of 2004 with the adoption of a position paper entitled "ESA and the defense sector" suggesting that dual-use activities are no longer excluded if they don't have a directly aggressive purpose⁹.

As a consequence, ESA started to examine dual-use applications particularly through its Office for Security, Strategy and Partnership Development Office. In the field of space militarization, ESA is involved in the Galileo and GMES programs, which both have security implications. The Agency is also running the European Data Relay Satellite (EDRS) program, that may have military users¹⁰. In addition, ESA recently launched the GIANUS (Global Integrated Architecture for iNnovative Utilisation of space for Security) program. This project aims to integrate existing and possible future European systems for crisis response services and national security actors, based on the concept of responsive space. Indeed, to increase the added-value of space assets for strategic decision-making, space services and systems need to be more affordable¹¹. These three tenets of responsive space will be at the core of GIANUS. This system-of-systems architecture would combine EO, telecommunication, navigation and launcher assets and capabilities¹².

To mitigate the threat of space weaponization, ESA also launched a space security initiative, with the adoption of the Space Situational Awareness (SSA) Preparatory Program at the 2008 ESA Ministerial Council. The objective of the program is to define an operational system that links existing and new assets for civilian and military uses. The implementation of full operational services will be subjected to approval at the next ESA Ministerial Council. One of the main drivers behind this initiative is the need for Europe to have an independent access to information on what is happening in space¹³.

The European Union: The New Leading Political Actor

The Treaty of Lisbon, which entered into force on 1 December 2009, made space a shared competence of the Union and its member sta-



tes and called upon the Union to draft a European Space Program¹⁴. This major step clearly attributes competences to the EU in space, and therefore strengthens the political dimension of space in Europe.

The growing role of the EU in space, and the correlate inclusion of security issues to the space agenda, is a consequence of its political and institutional evolutions in the last two decades. The Treaty of Maastricht in 1992 created the EU and introduced a Common Foreign and Security Policy (CFSP). The Cologne Council of 1999 then introduced a defense dimension to the CFSP with the launch of the European Security and Defense Policy (ESDP). A first consequence of these transformations was the transfer to the EU of the Satellite Imagery Interpretation Center of Torrejon in Spain, a creation of the disbanded Western European Union. The resulting European Union Satellite Center (EUSC) became in 2002 the Union's first operational entity in space¹⁵.

A landmark document from 2000, called the Wise Men Report, grasped the political and defense implications of these evolutions by stating that the ESDP would be incomplete without a proper space component. It called for ESA to become Europe's space agency, responsible for the implementation of cooperative programs, while the European Council would define the ESP and the guidelines for its implementation¹⁶. This division of labor would make the EU the primary political decision-maker in space. Even though these prospects have not materialized yet, the enhanced role played by the EU in space has concrete implications for space and security.

First, the Lisbon Treaty had institutional consequences. As of September 2010, all space competencies of the European Commission (EC) are folded in a single Directorate General in Brussels, namely the DG Enterprise and Industry. A new Deputy Director General will be in charge of space, security and GMES, as well as Galileo¹⁷. The role of the European Parliament was also strengthened¹⁸. Its Subcommittee on Security and Defence (SEDE) will likely continue to show interest in space and security issues¹⁹. Finally, the newly established European External Action Service (EEAS), under the responsibility of the High Representative for Foreign Affairs and Security Policy, includes a Crisis Management and Planning Directorate (CMPD) and a Joint Situation Center. These structures, that are in charge of civilian/military cooperation and early warning activities respectively, will rely on space applications to fulfill their tasks, in particular by using data from the EUSC. Additionally, as of 2011, the Council of the EU, the executive body representing the governments of member states, will have the possibility to meet as a Space Council gathering ministers in charge of space from all EU member states. It will be assisted by a Space Policy Working Group²⁰. The next Space Council of November 25th will likely retain the old format, stemming from the EC/ESA Framework Agreement and including representatives from the Council of ESA.

The political impetus at EU-level also paved the way for a stronger and better cooperation between all space European stakeholders. The two major steps in this regard were the conclusion of the EC/ESA Framework Agreement²¹ in 2003, and the adoption of the European Space Policy (ESP) in 2007, gathering all European space actors (EU, ESA, EUMETSAT and national states)²². These two documents set the conditions for the European political and institutional space architecture. To concretize the security implications of the ESP, three important initiatives were launched in recent years. First, a "structured dialogue on space and security" between the European Defence Agency (EDA), ESA, the EC and the Secretariat General of the Council was introduced in 2007, in order to make the most of synergies in the field of space and security²³. Second, an ESA/EC/-

EDA task force was created in 2009 to develop a list of critical technologies that Europe should develop to guarantee its strategic independence.²⁴ Finally, the European Framework Cooperation for Security and Defence Research was launched in 2009. Its purpose is to ensure complementarity and synergy between the EDA and the EU's R&T investments for space and security²⁵. A striking and decisive feature of these three initiatives is the growing involvement of EDA in space matters, mirroring the EU's rising ambitions in space and security.

Finally, the EU's progressive rise as an actor in space makes it increasingly able to get involved in security-related programs. The EU is already the leading stakeholder in the flagship programs Galileo and GMES, which both have security implications. The Union also seeks to play an active role in the development of a Space Situational Awareness (SSA) capability²⁶. The endorsement of a Code of Conduct for Outer Space Activities by EU countries has been the first instance of the Union taking a direct and innovative role in matters pertaining to «grand strategy» at international level. The CoC represents the European input to current worldwide discussions on Transparency and Confidence Building Measures (TCBMs) in space²⁷. These initiatives could represent the first building blocks of a European security strategy in space, thus contributing to the emergence of a common European identity in this field.

Conclusion

Europe is a recent actor in security-related space activities. There are no European military operational capabilities in space yet apart from EUSC, as most space assets are still owned nationally. In addition, Europe features a relatively low budget for military space: it amounts to 752 million \$ in 2009, compared to 28,7 billion \$ in the US²⁸.

However, Europe also relies on several potential assets. It developed competencies and capabilities at the national level for EO and satellite communication and at EU/ESA level for satellite navigation. From a political point of view, there is a clear trend towards increased European cooperation/integration in the field of military space, the Lisbon Treaty being a recent key milestone. A strong driver in this respect is the need for Europe to develop strategic independence in space, in spite of enduring national resistances. The key challenge to fostering a European strategy for space and security will be to reconcile these two seemingly opposite trends. To sum up, the development of a European architecture for space and security is a process that has two features: it is slow and progressive, but it moves forward.

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