

JOINT ESPI-SPI MEMORANDUM ON TRANS-ATLANTIC SPACE RELATIONS

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Europe and the United States have been involved in joint space activities for more than forty years, making the trans-Atlantic partnership the oldest alliance in space. But new U.S. attitudes and directions in space towards space exploration on the civilian side and a mixture of unilateral and cooperative approaches on the security side, and the current modification of the European space context with the emerging role of the European Union in space affairs and the “utilitarian nature” of its space endeavors (Galileo and the Global Monitoring for Environment and Security program), plus increased attention to using space capabilities for security purposes, are affecting the nature of traditional European – U.S. space relations. There is a need for a new dialogue to define what future directions the trans-Atlantic partnership should take.

This joint European Space Policy Institute - Space Policy Institute memorandum aims to provide reflections on the state of current trans-Atlantic space relations, and to lay out issues to be considered in the months ahead by analysts and policy makers on both sides of the Atlantic.

Experience to Date in Trans-Atlantic Space Cooperation

The United States and Europe have been cooperating in space activities for more than four decades. During this period, more than a hundred missions have involved various forms of U.S.-European cooperation; the cooperative aspects of these missions have varied greatly in scope, complexity, and success. A wide variety of stakeholders - on both sides - have been involved, underlining the multidimensional aspects of this relationship. Through their partnership both Europe and the United States have learned from one another, acquired and developed a knowledge base, and most important have established a heritage of space cooperation without parallel. This has not been easy. This history of European-U.S. cooperation in civilian space affairs has continued despite significant geopolitical, economic and technological changes, such as the end of the Cold War, the pressure of budget reductions on both sides of the Atlantic, political differences in several areas, in addition to the difficulties of cooperation in several projects such as the International Solar Polar Mission (ISPM), the International Space Station (ISS), and the tense GPS-Galileo negotiations. Attempts to foster cooperation in space for national security have been less than successful, primarily because of the much higher priority given to date to the security uses of space by the United States and the consequent gap in the security-related capabilities between the United States and Europe.

The patterns of trans-Atlantic cooperation in space activities have evolved over time, illustrating the dynamic nature of this relationship. In the initial years of European space activities cooperation often took the form of free launches of a European spacecraft provided by the United States in exchange for some payload sharing on that spacecraft. In addition, many space scientists and engineers from Europe were able to come to the United States to learn from their U.S. counterparts. With the increase of European

capabilities, a long period of more intense and more complex cooperation began, including in human spaceflight, as illustrated by the European participation in the Space Shuttle and the ISS. In addition, the results of trans-Atlantic civilian space cooperation in robotic science missions are impressive, with missions such as the Hubble Space Telescope, Topex-Poseidon, Cassini-Huygens, and the Shuttle Radar Topography Mission (SRTM). The partnership between the United States and Europe is thus the leading example of successful international cooperation in civilian space activities.

Current trans-Atlantic civil space cooperation is built around four main pillars: space science; human spaceflight; space exploration; and space applications.

- Cooperation in space science is the historically strongest axis of trans-Atlantic cooperation. European and U.S. scientists have come to expect to work together on a significant portion of their missions, while also working with other partners and implementing missions with little or no cooperation. Future planning for science missions on both sides of the Atlantic assumes continued cooperation in both major and less ambitious undertakings.
- Human spaceflight has been a particularly visible example of trans-Atlantic partnership, beginning with the 1969 U.S. invitation to Europe to participate in its post-Apollo spaceflight efforts. This ultimately resulted in Europe contributing the Spacelab module to the Space Shuttle program. Many European astronauts have also flown aboard the shuttle. Europe beginning in the 1980s has developed its contributions to the ISS, the Columbus orbital module and the re-supply cargo vehicle, the Automated Transfer Vehicle (ATV), both finally launched in 2008.
- While trans-Atlantic cooperation on robotic space exploration is not new, the possibility of cooperation in human activities beyond Earth orbit, and first of all on the surface of the Moon, has become an important feature of planning in both the United States and Europe. Europe through the European Space Agency (ESA) was first to lay out a plan for future exploration with its Aurora program, begun in 2001, but it was the announcement of the U.S. Vision for Space Exploration in 2004 that has given cooperative discussions a political stimulus. More recently, the French President has called for enhanced European-U.S. collaboration in planetary exploration. European space agencies and ESA and the National Aeronautics and Space Administration (NASA) are also the major forces in developing the recently-announced Global Exploration Strategy, which proposes a vision for globally coordinated space exploration.
- Space applications, particularly in meteorology and other areas of Earth observation, have provided over the years many opportunities to strengthen the trans-Atlantic cooperative axis. Eumetsat, ESA and the National Oceanic and Atmospheric Administration (NOAA) cooperation in satellite meteorology is a long-standing effective partnership. Europe and the United States are also among the key actors of the Global Earth Observation System of Systems (GEOSS). In the field of satellite navigation, after months of tension between the Europe and the United States over how the U.S. Global Positioning System (GPS) and the European Galileo system might coexist, top government officials inked a cooperative agreement in 2004.

By contrast to the civilian sector, trans-Atlantic cooperation in space for national security has been slow to develop. A major reason for this is that while the United States military and intelligence communities have made for many years a strong commitment to the use of space systems to facilitate their missions, such a commitment in Europe is still in an early stage of development. A few European countries have developed for some years capabilities for gathering strategic intelligence from space, and several militaries have developed communications satellites. But creating other European security space capabilities has happened only in the past few years. There have been sporadic military-to-military discussions about areas of potential cooperation, but few programmatic activities have resulted. Potential cooperation in developing a communication satellite called INMILSAT on a trans-Atlantic basis were conducted in the first half of the 1990s, but no agreement to begin that development was reached. Limited cooperation within the framework of the North Atlantic Treaty Organization (NATO) exists, particularly in the field of military satellite communications.

In summary then, there is a strong foundation of experience to draw upon as future opportunities for trans-Atlantic space cooperation are assessed. That experience includes successes, difficulties, and a very few failures. This relation has also been marked by limited cooperation on the industrial front and competition in the satellite manufacturing and launch services market. Fundamentally, the experience to date shows that well-crafted cooperative projects evolving in parallel with such commercial competition can provide meaningful benefits not otherwise available to all parties to the effort.

Recent Developments in Trans-Atlantic Space Relationships

The arguments in favor of trans-Atlantic cooperation have not fundamentally changed since the beginning of Space Age; they are still political, scientific and economic. However, the nature and scope of this cooperation in space may fundamentally change in coming years, leading to the need for a new paradigm in trans-Atlantic space activities.

This new paradigm will evolve in a period of changing trans-Atlantic political relations. Over the past few years, leaders of several major European countries have questioned the directions being taken by the United States in exercising its global leadership role, and the result was a chilling in the trans-Atlantic relationship. With new leaders in place in Europe and a less antagonistic attitude towards Europe on the part of the United States, that strained relationship is being replaced with one that is considerably more mutually positive. With the coming change in administration in the United States, there is every expectation that this positive climate will continue.

On one hand, rapid changes in global space activities are currently affecting the overall context in which trans-Atlantic space relations is evolving. First, the United States (and Russia) are no longer the only states that can lead cooperative projects. Europe has now become, despite the relatively limited public money allocated to space programs, a substantial space power with an increasing range of technological and scientific capabilities, and thus an attractive partner to established and emerging space-faring countries. In addition, China and to some degree India are taking a leading role in some cooperative projects. Second, the number of countries that could be involved in space activities has increased, leading to a changing geopolitics of space activities. Third, cooperation is not only restricted to single missions, but has evolved to more strategic and long-term and interdependent agreements, as illustrated by the multi-year projects such

as Hubble, Cassini-Huygens and the ISS, and potential cooperation in human exploration beyond Earth orbit.

On the other hand, trans-Atlantic relations are also evolving due to factors specific to Europe and the United States. Europe's approach towards space has entered a phase of transition. Space activities are still fragmented in Europe, both organizationally and financially, but since the pioneering times of the European Space Research Organization (ESRO) and the European Launcher Development Organization (ELDO) in the 1960s, the European space context has changed dramatically. The European space sector is now entering its fourth institutional evolution, with the emergence of the European Union and the European Commission as major European space actors alongside ESA and national space agencies. In this context, space technologies and applications are now widely seen as key elements in support of EU policies and objectives, from the environment and agriculture, to information technologies, to defense and security. The emphasis on “user-driven” space activities is an increasingly central feature of European space policy.

Europe is very much aware of the still fragmented character of its space efforts, and is pursuing a variety of paths towards a more integrated approach. Most notably, the first European Space Policy, approved at the fourth Space Council held in Brussels on 22 May 2007, is an important step towards a coherent European approach to space. For the first time there is formally a European Union dimension to space policy. This collective European Space Policy establishes thus a comprehensive political framework for the development and exploitation of space technologies and systems and demonstrates Europe's willingness to respond to the challenges of the 21st century. The upcoming French Presidency of the Council of the European Union in the second half of 2008 aims also to crystallize this momentum by raising the importance of space in the European political sphere.

The Space Shuttle *Columbia* accident of 1 February 2003 led to a complete reassessment of the U.S. civilian space policy; the result was a decision to place an overriding focus on exploration issues. This new focus was spelled out in the 2004 U.S. Vision for Space Exploration put forward by President George W. Bush. Cooperation in this Vision implies developing and carrying out a multi-decade effort. Furthermore, like for Europe, the U.S. institutional space context is evolving with the increasing role of the U.S. Department of State as an actor more and more involved in space affairs. For instance, the State Department has taken the lead on the U.S. side in the EU – U.S. Dialogue on Civil Space Cooperation which aims to increase the effectiveness of trans-Atlantic cooperation in space by providing a platform for discussion and exchange of information to improve mutual insight into both side's policies and programs.

In August 2006, the Bush Administration approved a new statement of U.S. National Space Policy that both was more explicit than its predecessors in stressing the need for U.S. freedom of action in pursuing its interests in space and stressed the continuing importance of international cooperation as a U.S. policy goal. That and subsequent statements also have implied increasing interest in the United States in cooperation in national security space programs. This is a potentially important opportunity for expanded trans-Atlantic cooperation as Europe gives increased priority to its security uses of space.

Trans-Atlantic space relations are thus at an important juncture. There is a rare window of opportunity to reinvigorate the oldest alliance in space and to break new ground in trans-Atlantic space cooperation.

Issues Needing Attention

If there is to be a revitalization and enhancement of the trans-Atlantic space relationship, there are a number of pressing issues that should be addressed. It is the intent of the European Space Policy Institute and the Space Policy Institute to work together to the fullest extent feasible in addressing these issues. Among them are:

1. *Does the current U.S. emphasis on exploration beyond Earth orbit and the European emphasis on user-driven space applications significantly narrow the possibilities for trans-Atlantic cooperation in civilian space?*

The United States is actively seeking European contributions to both the robotic elements of its space exploration plans and to the eventual creation of a robust lunar surface infrastructure. While certainly some in European space agencies and industry want to take advantage of this opportunity, the reality is that European politicians seem to be giving priority to Earth-oriented applications programs aimed at providing Europe independent capabilities in critical areas, with little emphasis on intimate cooperation with the United States.

There thus seems to be a mismatch in space ambitions between the United States and Europe. Does that mean that the major area for cooperation in coming years will be space science? Will ESA and individual European countries decide to make significant contributions to a U.S.-led exploration effort? Can terms and conditions for such engagement be developed that reflect both the positive and negative aspects of U.S.-European cooperation in the International Space Station program? Might U.S.-European cooperation in a robotic Mars Sample Return be the most significant area of trans-Atlantic cooperation in space exploration? Is Europe willing to be left behind if other countries plan human missions to the Moon and other distant destinations? Are there areas for cooperation in space applications that go beyond coordination of separate efforts?

2. *Are there new opportunities for trans-Atlantic cooperation in the space and security arena?*

There seems to be growing interest on both sides of the Atlantic in creating or enhancing current capabilities in space surveillance and particularly in Space Situational Awareness (SSA). With the many new space systems planned for the future, it becomes increasingly important for all space users in the civilian, commercial, and national security sectors to have improved information of what is actually happening in the space environment. While the United States, via the Space Surveillance Network (SSN), currently managed by the U.S. Air Force, is the most capable actor in space surveillance, Europe under the guidance of ESA is currently studying options for developing a European-wide space surveillance network. Beginning to develop a pan-European capability in this area is an agenda item for the 25-26 November 2008 ESA Council at Ministerial level, and the EU is also interested in carving out a significant role in such a European undertaking. This situation illustrates that space is increasingly being recognized in Europe as being a strategic technology that is a key instrument for a comprehensive approach to societal security.

The issue of space surveillance/situational awareness has been identified by the 2006 U.S. Space Policy as a potential field for international cooperation. With increasing dependence of both the U.S. and European societies on space-based services, the space infrastructure becomes a critical infrastructure which needs to be well-managed and protected from disruption. European- U.S. cooperation in this field seems to be a promising goal for both sides. In the United States, space surveillance has historically been the responsibility on the Department of Defense (DoD). However, in a recent talk State Department Representative Ambassador Donald Mahley noted that “State is working with DoD to identify new opportunities for expanded cooperation with allies on shared SSA and space system protection. This will be a key topic for discussion in our regular space security dialogues with allies in the coming months.” Furthermore increased cooperation on the development of “rules of the road” for ensuring safe space traffic management or on other “transparent confidence building measures” could be to be put forward to ensure the overall sustainability of space activities.

How can the obstacles that have hindered cooperation in national security space – issues of classification and other sensitive topics – be overcome with respect to cooperation in SSA? Current national space surveillance capabilities and development programs in Europe are also under military control. Given that better SSA is important to all users of space, can a cooperative efforts be designed that will transcend the national security community?

3. *Many in Europe cite the current U.S. export control regime as a major obstacle to trans-Atlantic cooperation. How valid is this concern? What might be done to foster increased trans-Atlantic industrial cooperation in the space sector?*

Almost every European space leader seems to see the current stringent U.S. export control regime, in particular the International Traffic in Arms Regulations (ITAR), as a significant barrier to space cooperation. Europe has taken several actions to free itself of some of the limitations of the current U.S. regime, such as the European Component Initiative led by ESA and supported by several national space agencies and the development of “ITAR-free” satellites by a major European manufacturer. It would, however, be useful to have some in-depth analysis of how export control actually serves as a constraint on cooperation. Is the issue which deters European entities from seeking to work together with the United States the difficulty and complexity of working within the export licensing and Technical Assistance Agreement (TAA) processes set up by the United States? Are there “real” examples of incidents in which all procedural steps were followed, but the desired cooperation did not happen because of substantive obstacles that resulted in license or TAA denial? Are there moves in the reform of U.S. export control regulations that could ameliorate perceived barriers while still furthering the U.S. security goals that are served by export controls?

In order to give new quality to the economic dimensions of the partnership in space between Europe and the United States a number of initiatives could be considered. The United States and European governments are the two biggest institutional actors in space, and the United States and Europe also represent the two biggest commercial markets and have the most developed space industries. In particular, to contribute fully to the growth and integration of the European and U.S.

economies a structured dialogue on the barriers to the creation of a properly functioning trans-Atlantic market for the space industry could be proposed. Despite over forty years of government agency-to-government agency cooperation, the results of trans-Atlantic industrial cooperation have been modest. Notwithstanding good intentions on both sides for improving prospects for partnerships, and although the potential advantages of closer ties are recognized, there is no coherent strategy for trans-Atlantic industry cooperation. Major obstacles remain - not only regulations limiting technology transfer but also limitations on foreign investment and a "buy national mentality." These bureaucratic and political obstacles are not unchangeable; what steps might be taken to stimulate trans-Atlantic industrial cooperation in space?

Conclusion

It is a particularly appropriate time to discuss enhancing the four decade-old trans-Atlantic space cooperation. The launches to the ISS of the European Columbus orbital module and the initial cargo resupply vehicle (ATV) bring to a close a period of cooperation with its roots almost a quarter century ago. These two high visibility events should result in a political climate favorable to discussions of new steps in the cooperative relationship.

What is at stake has significance beyond the space sector. If either the United States or Europe were to shift its primary attention with respect to space cooperation towards other partners, it could be seen as a signal of a sea change in the trans-Atlantic relationship that has been critical to global security, economic prosperity, and improvements in the quality of life for all over the past sixty years. Space cooperation may not lie at the foundation of the trans-Atlantic relationship, but it certainly has been a very prominent symbol of that relationship.

Both the United States and Europe have an increasing range of options in how best to pursue their respective interests in space. It is the belief of the European Space Policy Institute and the Space Policy Institute that enhanced trans-Atlantic cooperation is an essential strategic option for both to pursue, and we hope to assist decision-makers on both sides of the Atlantic in following that path.

Mission Statements

European Space Policy Institute:

ESPI's mission is to carry out studies and research to provide decision-makers with an independent view on mid- to long term issues relevant to the governance of space. Through its activities, ESPI contributes to facilitating the decision-making process, increasing awareness on space technologies and applications with the user communities, opinion leaders and the public at large, and supporting students and researchers in their space-related work. To fulfill these objectives, the Institute supports a network of experts and centres of excellence working with ESPI in-house analysts.

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Space Policy Institute:

George Washington University established a Space Policy Institute in 1987. The Institute conducts research on space policy issues, organizes seminars, symposia, and conferences on various topics, and offers graduate courses on space policy. The Space Policy Institute focuses its activities on policy issues related to the space efforts of the United States and cooperative and competitive interactions in space between the United States and other countries. The Institute provides a setting in which scholars, policy analysts, practitioners, and students can work together to examine and evaluate options for the future in space.

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