Advancing an International Space Code of Conduct

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The past two decades have witnessed a fairly dramatic intensification of space-related activities. Beyond the exploration and exploitation of space by the U.S., Russia and Europe, the world has witnessed Asia's accelerated development of space capabilities and activities. It is now universally understood that space-based assets offer a wide spectrum of critical civilian, commercial, and military-related services, many of them essential. Space assets (including ground-based) are, therefore, properly regarded as vital infrastructure for governments and the private sector and their disruption would have far-reaching economic, political, and geostrategic consequences.

A growing amount of orbital space debris remains one of the key challenges for a safe space environment. In addition to the perils of space debris, the growing number of space-faring nations and satellite applications are increasing demand for limited radiofrequency spectrum and orbital slots. These are indispensable for space operations and securing them is a prerequisite for space operators in designing any new space mission. The technical ease with which both intentional and unintentional frequency interference can occur will remain a significant space security concern for the foreseeable future.

The U.S. views space as increasingly contested (i.e. confronted by a range of natural and man-made threats that could potentially deny, degrade, deceive, disrupt, or destroy space assets and their supporting infrastructure), including threats to space systems from an increasing number of state and non-state actors which have developed, or are configuring, counterspace capabilities. Europe has also recognized the need to protect space infrastructure, including its acknowledgement that space security is a global challenge requiring cooperation with the U.S. and other international partners.

Due to the delicate nature of the space environment and the world's growing dependence on space assets, careless or malevolent behaviour by any actor in space can damage the operating capabilities of all space-faring nations. Accordingly, the global space community seeks to require that all nations which exercise the right to use and explore space conduct their activities responsibly and prudently. Active discussions are also underway concerning how best to strengthen the current framework governing space activities.

Given these realities, this article describes current efforts to develop multilateral governance regimes for outer space with special attention to Europe's draft International Code of Conduct for Outer Space Activities. It also touches upon the essential roles played by the Space Situational Awareness (SSA) and transparency and confidence-building measures (TCBMs) in developing shared behavioural norms.

International Framework for Space Activities

The legal core for the conduct of space activities is embodied in five space treaties (i.e. the Outer Space Treaty of 1976, the Rescue Agreement of 1968, the Liability Convention of 1975, the Registry Convention of 1975, and the Moon Agreement of 1979) and five sets of legal principles adopted by the UN General Assembly. These governance principles include broadcasting via satellites, remote satellite observations of Earth, and general standards for the safe use of nuclear power sources in space. There are likewise a number of resolutions relating to outer space and various bilateral and multilateral practices and agreements.

The expanding number of space actors, objects and debris multiplies the hazards associated with the safe and secure space operations. In short, the norms established by the 1967 Outer Space Treaty (OST) are more relevant than ever. At the same time, the provisions to ensure compliance with the OST and to implement various portions of the Treaty have been relatively weak. Accordingly, a number of top-down and bottom-up proposals and initiatives to reinforce the current framework for space activities have been introduced.

The top-down proposals include the Russia-China draft treaty proposal on the "prevention of the placement of weapons in outer space, the threat or use of force against outer space objects" (known as PPWT), introduced in the Conference on Disarmament (CD) in 2008, and Canada's 2009 working paper "on the merits of certain draft transparency and confidence-building measures and treaty proposals for space security"[1]. A draft Code of Conduct for Outer Space Activities is another illustration. Bottom-up codes of conduct and best practices guidelines have also been introduced, including space debris mitigation guidelines and the concept of space traffic management (STM). The long-term sustainability initiative of the Scientific and Technical Subcommittee (STSC) of the UN Committee on the Peaceful Uses of Outer Space (UNCOPUOS) is an all-encompassing bottom-up effort. Various space safety and commercial initiatives have likewise been established (e.g. the IAASS, SDA).

China and Russia have promoted an arms control approach and have focused on the "Prevention of an Arms Race in Outer Space" (PAROS), discussed in the CD since 1980s, as well as a ban on space-based weapons. Their joint working paper entitled, "Possible Elements for a Future International Legal Agreement on the Prevention of the Deployment of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects" was introduced in the CD in June 2002, followed by the PPWT proposal in February 2008.

Although most countries agree that an arms race in space is not desirable, there is no consensus that such an arms race is underway, and hence no need for such arms control measures. Moreover, there is currently little momentum behind the PPWT proposal due to the stalemate at the CD over the past 15 years (as the linkage of several issues has precluded progress). Nations at the CD have, as yet, been unable to come to a common view that this treaty would benefit their national security. Moreover, as the U.S. has long pointed out, a ban on weapons in space is inherently unverifiable.

A more practical approach has been the adoption by the UN General Assembly of the Inter-Agency Debris Mitigation Guidelines in February 2008. It represents an example of a successful bottom-up approach that has significantly contributed to preserving the outer space environment. At the UNCOPUOS Scientific and Technical Subcommittee (STSC), the topics of space debris, space weather, near-earth objects, nuclear power sources in space and other topics closely related to space sustainability, have been on the agenda for many years. A new agenda item of the STSC, entitled "long-term sustainability of space activities," was originally initiated by France, and introduced formally in February 2010. It seeks the adoption of a comprehensive approach to the multifaceted challenges of preserving space for the generations to come.

A Working Group was established in June 2010, to advance the establishment of practical measures (reinforced by voluntary guidelines) to enhance space sustainability. The overarching goal is to formulate "best practices guidelines" for safer operations in space. The Group has been divided into four expert units which began their work at the February 2012 STSC meeting. They include the Sustainable Space Utilization Supporting Sustainable Development on Earth (group A), Space Situational Awareness and Debris Mitigation (group B), Space Weather (group C), and Regulatory Regimes and Guidance for Actors in the Space Arena (group D). A draft report of the Working Group is to be submitted to the STSC in February 2014.

Many familiar with the consensus-based work of the UN argue, quite justifiably, that the evolution of space-related realities is proceeding faster than the organization's ability to keep pace. It has been argued that the UNCOPUOS is perhaps being sidelined by other initiatives such as that of the draft Code of Conduct or the Space Data Association (SDA). Moreover, UNCOPUOS has yet to address the more active involvement of private actors, whose role is increasingly relevant for deliberations on space activities. Nevertheless, the UNCOPUOS will remain an essential platform with global reach.[2]

A draft Code of Conduct for Outer Space Activities, proposed by the EU, represents a non-binding document that seeks to promote behavioural norms in space and complement most other existing initiatives. The proposal, described in more details below, is an effort on the part of the EU to play a normative role in space security.

Finally, Space Situational Awareness (SSA) is an important contributor to advancing the responsible use of space. SSA is one of the most important elements of ensuring the safety and security of all functioning satellites and spacecraft and enabling the monitoring and understanding of a constantly changing space environment. The U.S. seeks to enhance the prevention of on-orbit collisions via sharing SSA-derived information with commercial operators and other governments. The commercial Space Data Association (SDA) facilitates SSA information exchanges between satellite owners and operators and Europe is seeking to build a Europe-wide SSA system. High-level policy-makers in Japan are also discussing the upgrading of their national SSA capabilities, and there are broader discussions underway on the need to create a more comprehensive SSA picture and share data and information internationally.

Europe's Efforts to Advance Space Security

In Europe, space is now considered a strategic priority and an increasingly essential component of policy planning and decision-making. The topic of space security has gained momentum through such developments as the European Space Policy of May 2007 and the Lisbon Treaty of 2009, the latter of which gave the European Union (EU) an explicit mandate to be involved in space matters as a competence to be exercised parallel to Member States. Accordingly, Europe is now positioned to pursue and invigorate current space efforts for the benefit of humankind and Europe's overall global standing. The EU has been focused on efforts to enhance space security through the building of European Space Situational Awareness (SSA) capabilities, participating actively in multilateral venues, including the UNCOPUOS, and promoting the Code of Conduct for Outer Space activities.

The draft Code of Conduct, introduced by the EU in 2008, 2010, and 2012, respectively, has been Europe's most significant space security-related initiative to date. It was stimulated, to a large extent, by the troubling display of non-transparency and insensitivity to the space environment shown by China in its 2007 anti-satellite (ASAT) test. A document entitled "Food For Thought on a Possible Comprehensive Code of Conduct for Space Objects" was offered by Italy in the CD in March 2007. The document highlighted a number of gaps in existing TCBMs and suggested that new TCBMs would be necessary to strengthen adherence to, and the implementation of, binding and non-binding space security-related obligations. The EU endorsed this initiative under Title V of the EU Treaty Concerning the Common Foreign and Security Policy (CFSP) which was presented to the General Assembly as the European reaction to UNGA Resolution 61/75 on TCBMs.[3] Also in 2007, Germany organised a workshop entitled "Security and Arms Control in Space and the Role of the EU" in Berlin as part of its effort to insert space security on to the EU agenda.

In the autumn of 2007, the Portuguese EU Presidency prepared a first version of a draft Code of Conduct, later updated by the Slovenian EU Presidency into "Best Practice Guidelines for/Code of Conduct on Outer Space Activities". By summer 2008, the first informal consultations were undertaken with key space-faring nations, including the U.S., China and Russia. The French EU Presidency that began in July 2008, continued to promote the Code which resulted in the official release of the first draft Code of Conduct by the EU Council in December 2008.[4] The EU then introduced the Code to other nations, as well as international bodies. The EU engaged in bilateral discussions on the draft document with a number of countries, including the U.S., China, Russia, Brazil, Canada, India, Indonesia, Israel, South Korea, South Africa and Ukraine[5], resulting in a revised version of the Code introduced in September 2010. During these negotiations, the EU encountered some reservations concerning the process associated with its proposal from a number of nations, including the U.S., Russia, China, India and Brazil.

The U.S. announced on 17 January of this year its readiness to support negotiations on an "international code of conduct". Besides the U.S. and Europe, Japan, Australia and several other countries expressed their support for this initiative. As a result, the EU officially introduced at the UNCOPUOS in Vienna a revised draft of the International Code of Conduct for Outer Space Activities in June 2012. The meeting's purpose was to prepare countries for the upcoming negotiations on the new draft proposal that will take place in October 2012.

By introducing the Code of Conduct, the EU supported the notion that voluntary rules of the road, grounded in "best practices" among space actors, offers the most promising approach to achieving space behavioural norms. The EU emphasized that the Code of Conduct represents a pragmatic and incremental process which can assist in achieving enhanced safety and security in space. The Code has a preventive focus, emphasizing that activities undertaken in space should involve a high degree of care, due diligence, and transparency with the aim of building confidence among space actors.

The draft Code is one of the central proposals for a voluntary international agreement to enhance space security. It is also, in part, designed to serve as an alternative to treaty proposals for prevention of an arms race in outer space or bans on space weapons (e.g. PPWT) and is currently being structured outside of traditional multilateral institutions like the UN and the CD.

The perceived shortcomings of such initiatives, or global-level governance generally, include the lack of definition concerning an authority which can effectively enforce the agreed rules and procedures. Moreover, the general nature of the objectives stated in the Code leaves considerable room for various, and even conflicting, interpretations. Accordingly, guidance on more concrete TCBMs could help substantiate formal initiatives such as the Code.

Transparency and Confidence-Building Measures (TCBMs)

TCBMs are already present in existing, legally-binding space agreements. They have been introduced in various frameworks including UN General Assembly (UNGA) resolutions originated at the UNGA First Committee (a key sponsor of which has been Russia); the related Group of Government Experts (GGE) on "TCBMs in outer space activities" that will hold its first session in July 2012; the U.S. 2010 National Space Policy (NSP) and its intention to pursue "near-term, voluntary, and pragmatic TCBMs"[6]; and the TCBMs introduced through the draft International Code of Conduct for Outer Space Activities.

Existing TCBMs for space carry benefits as well as some baggage. Both Russia and China, which proposed the CD-related TCBMs, are proponents of a legally-binding treaty on banning space weapons that has not, as referenced earlier, gained any traction internationally. There is also a history of terrestrial TCBM disappointments, especially in the arms control and missile proliferation arenas. These mixed results complicate persuading some space actors of the benefits of TCBMs for non-binding agreements. That said, as bottom-up approaches to managing space activities require supportive mechanisms, TCBMs, in the right circumstances, will likely serve as an indispensable tool for positive outcomes.[7] Carefully-crafted TCBMs that take into account operational characteristics of space can go a long way in bolstering space sustainability.

While acknowledging their various limitations, including the issue of verification and compliance, realistic TCBMs will almost certainly play an essential role in diplomatic venues. Accordingly, states possessing an advanced understanding and commitment to international law are going to be essential for more creative and persuasive space diplomacy.

Conclusion

There now exists widespread recognition of the global dependency on space systems. This recognition is accompanied by the desire of a growing number of space actors to achieve maximum autonomy in a number of areas. Nonetheless, a more "crowded" space environment brings the elevated risk of accidents and incidents. The irresponsible acts of one actor can have damaging consequences for all, supporting a joint interest in the safety, security and sustainability of outer space activities.

As indicated above, different multilateral efforts to address space security, both top-down and bottom-up, are underway. Space-related cooperation helps reaffirm the principle of the peaceful uses of outer space. To cooperate meaningfully, however, countries need to share a common appreciation of the value that a collective approach to space security brings versus a go-it-alone policy. To achieve such a consensus is challenging, as more countries have come to understand the importance of space-derived technologies and solutions for their military capabilities.

Moreover, new dual-use technologies complicate the effort to establish balanced measures that enhance stability and predictability in space.

Although virtually all space-faring nations desire to mitigate the risks associated with orbital debris, secure free access to space and avoid misunderstandings and incidents, the means of implementing certain of these objectives remain elusive. Given the complex space environment involving new actors and technologies, there is an urgent need for creative TCBMs, especially when no new viable space treaty is presently on the horizon. Such TCBMs can help bridge the gap between national space policies and more cooperative international understandings and agreements. Even if a meaningful international accord, such as an International Code of Conduct, is ultimately concluded, the need for TCBMs will continue unabated as new technologies and challenges to space operations emerge. Accordingly, there is no side-stepping the quest for more robust and global space security measures and the increasingly urgent need to hold both state and non-state actors accountable for their behaviour in space.

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[4] Rathgeber, Wolfgang, Nina-Louisa Remuß, and Kai-Uwe Schrogl. "Space Security and the European Code of Conduct for Outer Space activities." Disarmament Forum 4 (2009). 35–36.

[5] Ibid. 38.

[6] "U.S. Joins Effort to Clean Up Space Environment." 30 Jan. 2012. Environment News Service. (21 May 2012). <http://www.ens-newswire.com/ens/jan2012/2012-01-30-02.html>.

[7] Robinson, Jana. "The Role of Transparency and Confidence-Building Measures in Advancing Space Security " ESPI Report 28. 2. May 2011 <http://www.espi.or.at/images/stories/dokumente/studies/ESPI_Report_28_online.pdf>: 30.