THE NEXT SPACE SECURITY NORM

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Executive Summary

The U.S. government has led in the development of new space security norms, such as a commitment to not conduct destructive direct-ascent anti-satellite (DA-ASAT) missile tests. While it may seem incongruous to expand norm-building efforts at a time when Russia is reportedly close to launching an orbital weapon that would violate its legally binding commitments under the Outer Space Treaty, it is not too soon to consider the next major space security norm effort. This chapter summarizes the norms discussions in various United Nations (UN) bodies and proposes a set of criteria that are then applied to a series of potential norm options that the United States and like-minded nations could champion.

The selected criteria (comprising the acronym FOUR) are:

1. **Feasible.** Relevant space actors have to believe that the benefits of applying the norm proposal outweigh the costs.

2. **Observable/Attributable.** States must be able to observe and attribute behaviors related to a norm proposal.

3. **Understandable.** A norm must be understandable and definable to an appropriate level of detail.

4. **Relevant.** Security-focused norms that align with the Department of Defense (DOD) tenets of responsible behavior.

These criteria, when applied to the most commonly discussed norms topics raised at the UN open-ended working group on reducing space threats through norms, rules, and principles of responsible behaviors, lead to four candidates for the next space security norm. Each candidate shows some promise for addressing the FOUR criteria, and the next administration should pick one, or several, of these options to pursue:

- Do not intentionally produce debris (may be qualified by "significant amounts" or "long-lived").
- Do not make physical contact (or rendezvous) with another state's space object without consent.
- Do not interfere with critical civilian services.
- Establish security-related transparency and communication methods.

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Introduction

Norms of behavior have become a major focus of space diplomacy efforts across the last decade, accelerating and increasing in intensity since 2020. Space security norms have been particularly important and challenging as more militaries develop space capabilities and a widening range of commercial space services are made available for national security activities. As tensions rise, so too does the risk of miscommunication and miscalculation that could lead to conflict in space. Norms can help alleviate some of the pressure and provide paths for deconfliction and deterrence of irresponsible or threatening behaviors. While there is ongoing debate on the merits of establishing norms through voluntary guidelines versus through binding treaties, an increasing number of countries agree that some level of common understanding needs to be built over what behaviors in space are acceptable or unacceptable from a security perspective. [1]

The U.S. government has begun efforts to lead in the development of new space security norms. In particular, the United States has championed a potential norm in the form of a commitment to not conduct destructive DA-ASAT missile tests. The commitment, which started as a unilateral announcement led by Vice President Kamala Harris, has spread to numerous other countries and to a widely supported United Nations (UN) resolution. Now, it is time to consider what the next major space security norm effort should be. This chapter discusses the history of space security diplomacy and norms discussions, explores the development of the destructive DA-ASAT test commitment, and proposes a set of criteria that are then applied to a series of potential norm proposals that the United States could champion. Although this chapter does not pick a winner from the short list of options, it provides insights and metrics that could be used to form a foundation for turning one of these norm ideas or others into a broadly accepted and internationally implemented norm of behavior.

Evolution of the Space Security Norm Discussion

Diplomatic discussions on security-related norms or treaties for outer space have long been fraught and stalemated. In the 1980s, the UN Conference on Disarmament (CD) found that discussions on the topic of Preventing an Arms Race in Outer Space (PAROS) exacerbated significant differences in the positions of the United States, Europe, and other partners and allies on the one hand, and the Soviet Union (now Russia), the People's Republic of China (China), and many developing states on the other. [2] For four decades the CD accomplished nothing of substance on PAROS, with the debate after 2000 mainly revolving around a draft treaty proposed by Russia and China on the prevention of placement of weapons in space, known as the PPWT. The United States and several of its partners and allies have continuously objected to the PPWT on the grounds that its terms are undefinable, unverifiable, and leave out key threats to the space environment such as the testing of DA-ASAT missiles. [3]

Several spinoff efforts from the Conference on Disarmament have attempted to break the deadlock and develop space security provisions of substance, such as the Group of Governmental Experts on Transparency and Confidence-Building Measures for space and the Group of Governmental Experts on Further Measures for PAROS. The former effort reached consensus in 2013 but had mixed implementation of recommendations, and the latter failed to reach consensus in 2019. [4] A new effort began in 2020, when the United Kingdom (with U.S. support) proposed and passed a resolution calling for states to submit their views on how to reduce space threats through norms, rules, and principles of responsible behavior. [5] After numerous states submitted their responses, the UN General Assembly voted in 2021 to create an open-ended working group (OEWG) on the same topic. [6]

The OEWG on reducing space threats met four times for week-long sessions in 2022 and 2023, ultimately failing to reach a consensus. The same disagreements dividing the Conference on Disarmament for decades appeared again in the OEWG, with Russia and China arguing that discussions should focus only on legally binding agreements banning placement of weapons in space, while most of the OEWG participants maintain that a focus on nonbinding norms of behavior in space would be more pragmatic and effective, at least as a first step. Other divisions and disruptions have included Russia's attempt to prevent discussion on the applicability of the Law of Armed Conflict to space and Iran's argument that the very concept of "responsible behavior" is discriminatory. [7] These disagreements ultimately prevented the group from reaching

the level of consensus needed to produce a report, despite many concepts and proposed norms earning support from a majority of the participants.

Regardless of the formal outcome, the OEWG generated unprecedented discussion on potential space security norms. The findings from these discussions could be carried on in the future as the United States looks to lead and collaborate on further development of space norms.

Destructive DA-ASAT Missile Testing

Since 2022, the United States has led efforts to develop a particular norm through a combination of unilateral statements, public discussions, and multilateral engagements at the UN and the OEWG on Reducing Space Threats. The U.S. commitment to not conduct destructive DA-ASAT missile tests was announced by Vice President Kamala Harris on April 18, 2022. While encouraging other nations to join the commitment and help establish it as a norm, the vice president indicated that the commitment was the first initiative under the broader effort to "develop proposals for national security norms that advance U.S. interests and preserve the security and sustainability of space."[8] In the months following the announcement, U.S. diplomats promoted discussion on the subject at the UN OEWG on Reducing Space Threats. Many countries have since made matching commitments, including Canada, New Zealand, Japan, the United Kingdom, South Korea, Switzerland, Australia, Norway, Costa Rica, and all 27 European Union states.[9]

Beyond states directly joining the commitment, broader demonstrations of support have helped put the commitment on the path toward becoming a clear norm. On December 7, 2022, the UN General Assembly passed a U.S.-proposed resolution calling for states to refrain from destructive DA-ASAT missile testing, with 155 states voting in favor, 9 against, and 9 abstaining.[10] Three of the states that have previously tested destructive DA-ASATs did not vote in favor of the resolution: Russia and China voted against it and India abstained.[11] China, Russia, and Iran have been vocal critics of the commitment, claiming it is insignificant or a cynical attempt by the United States to block other states from developing a capability the U.S. already has, but an increasing range of international actors have indicated support. The commitment is largely recognized as a positive "first step" and not the end to the process of developing space security norms. Over 30 companies from around the world have also signed an industry statement in support of international commitments to not conduct destructive DA-ASAT tests, although many major commercial space actors have refrained from joining the statement.[12]

At the December 20, 2023, meeting of the National Space Council, Vice President Kamala Harris announced that she has directed the U.S. government to continue outreach to build further support for the commitment.[13] As this commitment builds toward the critical mass of support needed to become a norm, it is time to consider what the next major U.S. space security norm effort should be.

Selection Criteria for the Next Space Security Norm Effort

As noted above, the initial White House announcement of the U.S. commitment to not conduct destructive DA-ASAT testing said the commitment was meant to be the first initiative of a wider range of norm development efforts. So, what behaviors should be the next focus for a space security norm? Numerous states, civil society organizations, and UN reports have proposed possible criteria for norms or related concepts like transparency and confidence building measures (TCBMs). For the specific case of potential norms that the United States could champion, this chapter proposes "FOUR" criteria could be used to narrow down and compare the options:

1. **Feasible.** In order for any norm to have a chance, the relevant actors have to believe that the benefits of applying the norm proposal outweigh the costs of allowing normative constraints. So, a norm cannot be so restrictive that states feel it harms their national interests or that it would strongly motivate others to violate it, either openly or in secret. In today's context, it also means that the most likely proposals to succeed are those already featuring in discussions such as those at the OEWG on reducing space threats. Although it is rare to find overlap between

concepts that have been mentioned favorably by both the United States and its allies on one side and Russia and China on the other, those few cases where convergence seems possible have the highest potential for global political feasibility.

2. **Observable (and attributable).** If there is potential for agreement that certain behaviors are acceptable or unacceptable, states must be able to observe and attribute those behaviors in order to be able to enact incentives and deter norm violations. This metric has two parts because space actors must be able to identify (a) that the norm has been violated and (b) who was responsible for the violation. If it is impossible or highly difficult for an actor to attribute violations of the norm, states will not have the confidence to support that norm proposal for fear that others will violate it in secret in order to gain asymmetric advantage. [14]

3. **Understandable.** A concept cannot become an effective norm unless it is understandable and definable to an appropriate level of detail. This does not mean that a norm necessarily requires a highly technical or quantitative definition but that each actor participating in the norm must be able to recognize which behaviors would uphold or violate the norm. A norm proposal is doomed to fail if it revolves around a controversial or poorly defined term, where states might have strong disagreements on what the term means or nefarious actors could use ambiguity to "cheat" on the spirit of the norm while arguing that they had done nothing wrong and had remained within the letter of the norm. As a non-legally binding commitment, assessing compliance with a norm should not require lawyerly reading of terms.

4. **Relevant.** Finally, while many concepts could be ripe for development as space norms in general, for the next space security norm concept, consideration should be given to what is "in scope." Recognizing that all the major powers have now either explicitly stated that they see space as a warfighting domain or are conducting themselves as if they believe that, this analysis will only focus on norm proposals aimed at resolving security concerns during peacetime, competition, or crises in space, contexts which would feature a very different set of norms from those used if an actual war in space were to occur. The norm should also be relevant to the operations and behaviors in which the DOD is interested, and a useful metric for such a measure would be to assess whether the norm concept aligns with one of the five "Tenets of Responsible Behavior" outlined by the Secretary of Defense in 2021 and codified in the Department of Defense Space Policy. The tenets are meant to guide responsible DOD space operations but also can serve as a benchmark for the categories of potential norms in which the DOD and the U.S. government may be interested. The five tenets are:

    a. Operate in, from, to, and through space with due regard to others and in a professional manner.

    b. Limit the generation of long-lived debris.

    c. Avoid creating harmful interference.

    d. Maintain safe separation and safe trajectory.

    e. Communicate and make notifications to enhance the safety and stability of the domain. [15]

Norm proposals that fall within the scope of these tenets would be more likely to align with existing U.S. government and DOD discussions and interests, easing the path to lead norm development. Therefore, alignment with the DOD tenets is a useful measure of "relevance" for the analysis in this chapter.

Assessing Norm Options Based on the Criteria

The documents and statements submitted to the UN OEWG on reducing space threats provide a foundation for identifying space security norm options that could satisfy the "feasibility" criterion. The author reviewed nearly 200 documents in the OEWG's archive, searching for state proposals and indications of support for different norm concepts.[16] The following norm options received support from a large number and range of states relative to other concepts discussed in the OEWG:

1. Do not deliberately or intentionally produce space debris.

2. Do not make physical contact (or rendezvous) with another state's space object without consent.

3. Do not disrupt or interfere with the provision of critical space services for civilians.

4. Establish a range of communication and transparency measures.

These four norm options are analyzed below to explore how well each matches up with the FOUR criteria of feasible, observable, understandable, and relevant.

Norm Option 1: Do Not Intentionally Produce Debris. The most popular norm concept discussed in the OEWG on reducing space threats was based around the concept "**Do not deliberately or intentionally produce space debris**" or, in a more security-focused framing, "**Do not physically destroy space objects**." This would, as a norm, be an expansion of the current destructive DA-ASAT test commitment, broadening it to include all activities that produce significant amounts of long-lived debris. It also lines up with the DOD tenet "Limiting the Generation of Long-Lived Debris." Beyond the United States, nearly as many states have voiced support for this broader norm proposal as have expressed support for the specific test commitment, with almost 40 states indicating in the OEWG that states should refrain from intentionally creating debris in space. Many proponents of this concept focus specifically on the debris-producing effects agnostic to how those effects are created. Others are more technologically focused and frame the concept more narrowly and potentially more controversially internationally as being against any testing or use of destructive ASATs.

This norm proposal would be relatively easy to attribute due to the observability of many kinds of debris using current space situational awareness technologies. However, there may be challenges with defining the norm. The phrasing of the norm concept described here is written to reflect the phrasing used by states in norm discussions at the OEWG. This phrasing is quite broad and would be difficult to implement consistently as-is because some normal operations in space, such as deployment of satellites from second-stage rockets, can predictably produce some amounts of debris. This could be interpreted as "deliberate creation" of debris and lead to a number of contentious disagreements about norm application.

Finding ways to minimize or mitigate debris in normal operations is a task for space safety and sustainability norm efforts such as those articulated in the Inter-Agency Space Debris Coordination Committee (IADC) and the Committee on the Peaceful Uses of Outer Space (COPUOS) debris mitigation guidelines or the Long-term Sustainability of Outer Space Activities (LTS) guidelines. So, a more evolved phrasing of this norm would need to reflect the objective of preventing states from destroying satellites and creating indiscriminate debris as a main product or byproduct of a hostile action. One option would be to imply quantitative thresholds in the definition, such as by using the terms "long-lived" or "significant amounts" to characterize the debris. Another could focus on the production of debris through destructive acts, which is already paralleled in language such as the fourth COPUOS debris mitigation guideline: "Avoid intentional destruction and other harmful activities." Those qualifications, while narrowing the scope of a norm, may be needed to persuade states that they would not be harshly penalized for small accidents or for producing small amounts of debris during space operations.

In terms of feasibility, China and Russia have not actively opposed this specific norm idea, but they do oppose the related effort to end destructive DA-ASAT testing. That, combined with Russia's deliberate production of debris in its 2021 ASAT test does not bode well for the prospects of active Russian or Chinese support for a space security norm on debris production. However, the breadth of states and non-state actors highlighting debris as one of their main concerns in space security discussions means that this concept could achieve a critical mass of support even without Russia and China.

Norm Option 2: Do Not Make Physical Contact (Rendezvous) with Another State's Space Object without Consent.

Rendezvous and proximity operations (RPOs) were a commonly targeted topic for potential norm development. While many states raised the idea of a general norm that RPOs should be conducted in a safe, transparent, and consensual fashion, the variation most in line with the norm evaluation criteria was the proposal: "**Do not make physical contact (or rendezvous) with another state's space object without consent**." This option is relevant to U.S. interests, such as the DOD tenet of "maintain safe separation and safe trajectory," but does so in a relatively narrow fashion to make it more feasible.

The concept of rendezvous—which in this context means the act of physically making contact with another satellite—is easier to define and to attribute than the concept of proximity. This is because the physics of orbital motion make it extremely difficult to reach common agreement on a quantitative definition of a "minimum safe distance" or spherical "keep-out zone" around satellites.[17] The difficulty of defining proximity means that satellite operators could get stuck in endless debates over potential norm violations and who got too close to whom, or nefarious actors could claim that their own close approaches are responsible while others' are not. On the other hand, it is much easier to observe and attribute events where one satellite approaches and makes contact with another. Current space situational awareness technology and the processes of tracking and registering satellites should make it relatively simple to identify a violation of a "no physical contact/rendezvous" norm and to determine who owns the satellite conducting the violation.

At least 33 states, including Russia, the European Union, Nigeria, the Philippines, Turkey, and the United Kingdom, mentioned grappling, physical contact, active debris removal, or rendezvous in the context of consent, while numerous other states argued for RPO consent in general that would be inclusive of rendezvous consent. This makes the proposal one of the small number of concepts that could theoretically gain support from a wide range of states with typically adversarial perspectives.

Norm Option 3: Do Not Interfere with Critical Civilian Services.

Interference can be a tough topic in space security norm development. Although the DOD tenets of responsible behavior, the Outer Space Treaty (OST), and the Constitution of the International Telecommunication Union (ITU) all mention avoiding creation of harmful interference, interference of many kinds occurs frequently in space. States have long struggled with enforcing obligations related to harmful interference, raising the possibility that a norm has developed that allows activities like jamming without a strong response or condemnation.[18] One international norm proposal could fit under the category of harmful interference: "**Do not disrupt or interfere with the provision of critical services to civilians**." This focuses on prohibiting or discouraging specific targets of interference instead of regulating interference methods themselves.

A common topic of discussion at the OEWG on reducing space threats has been the potential for catastrophic effects of disruption to critical space services on which civilians rely. An example of such consequences was on public display in April 2024 when an airline had to suspend flights into Tartu, Estonia, because the airport relied solely on GPS signals for approach and landing coordination, and those signals were being disrupted.[19] The concept of prohibiting or limiting such interference with critical services was mentioned in the OEWG by 37 states, including the United States. The biggest obstacle facing this potential norm is that, in the OEWG, Russia has already been laying the groundwork to argue that

satellites providing critical civilian services are a legitimate target if those satellites are also providing services to military forces in combat. Russia acknowledged that disruption to critical infrastructure for civilians is bad but blamed the companies supporting Ukraine for any interference or attacks Russia may initiate against those companies.[20] Incidentally, Russia was the state accused by Estonian officials of causing the interference affecting takeoff and landing navigation at the airport.[21]

In terms of definition, there is not universal acceptance of what constitutes a critical civilian service but neither is it as controversial as some of the other topics up for discussion. For example, positioning, navigation, and timing and other space services that enable disaster and emergency response were mentioned frequently in the OEWG as needing protection from interference. The actual behavior may not be difficult to observe since the norm hinges on noticeable disruption to key services, but it can be challenging to attribute the source of covert means of interference such as electronic and cyber.

Norm Option 4: Establish Methods of Transparency and Communication. Besides debris-producing activities, the category of norms proposals that had the most support across a wide range of states was the collective set of three proposals aimed at improving transparency and communication. Some of the norm ideas discussed in the OEWG, particularly the popular concepts of **sharing space situational awareness (SSA) data**, have crossover with norm concepts discussed in safety- and sustainability-focused organizations such as COPUOS. Others are based on existing proposed transparency and confidence building measures (such as discussions of **pre-launch notifications based on the Hague Code of Conduct** relating to missile launches and proposals that **states share national security space policies, doctrines, and strategies**) derived from the report of the 2013 Group of Governmental Experts on Transparency and Confidence-Building Measures.[22] This collective set of transparency and improved communication proposals had well over 30 states voice support, and the SSA and policy-sharing proposals were supported by both the United States and China. The DOD tenets of responsible behavior in space also feature a category dedicated to "[c]ommunicating and making notifications to enhance the safety and stability of the domain."

While those three proposals focus on the content of communications (SSA data, upcoming launch information, and policy and strategy descriptions), another important discussion revolved around how communications should be made. Because satellites are operated remotely from control stations around the world, it can be difficult to contact operators of another state's satellites in a crisis or high-intensity security concern. Therefore, numerous states have proposed **national or operator points of contact and direct channels of communication designated to address specific space security challenges**. These channels of communication and consultation could help deconflict disputes over space behavior and provide peaceful off-ramps to avoid escalation. Although these proposals were not the most popular—14 states mentioned points of contact, channels of communication, or both—they also were not particularly controversial as even the states prioritizing a legally binding arms control treaty acknowledged the benefits of some confidence-building measures. So, these norm proposals might have less momentum, but they also face fewer obstacles.

Attribution is less of a challenge for these proposals than others because it is easy to recognize whether a state is sharing information or participating in a channel of communication. Instead, the biggest challenge is getting sufficient diplomatic interest and political will. Because these norms would require states or operators to invest time and resources to establish the information-sharing or communication mechanisms, participants are needed who are willing to put in the effort and take the initiative. This means that, unlike many of the other norm proposals listed in this chapter, mere acceptance is not enough to implement communication and transparency norms. Positive action needs to be taken.

Table 1 summarizes the analysis of the four norm options and how they meet the four criteria of feasible, observable, understandable, and relevant.

Table 1: FOUR Criteria Analysis for Space Security Norm Options

Norm Option	Feasible	Observable/Attributable	Understandable	Relevant (DOD Tenets)
Do Not intentionally produce debris	No active opposition, but Russia and China oppose related proposal	Typically observable with current SSA capabilities, often attributable	Straightforward but may need qualifiers: "long-lived" and "significant amounts"	Limit generation of long-lived debris
Do Not make physical contact (or rendezvous) without consent	Wide support, including related conceptual interest from Russia.	Typically observable and attributable with current SSA capabilities	Clear delineation using "physical contact" threshold	Maintain safe separation and safe trajectory
Do Not interfere with critical civilian services	Broad support and represents major state concern, but some opposition from Russia	Effects easy to observe, but may be difficult to attribute	Would require more discussion/definition of "critical civilian service" but not outright controversial	Avoid creating harmful interference
Establish Methods of Transparency and Communication	Broad support but requires action and resources to implement (not just refraining from specific behavior)	Easy to identify whether states or operators are following the norm.	Most terms nontechnical and straightforward to define or categorize.	Communicate and make notifications

Honorable Mention

Numerous other potential norm proposals could be worthy of investigation and discussion. Some interesting norm concepts were proposed but had fewer supporters than the four concepts analyzed in this chapter, or they appear more difficult to define or implement. However, any of the following could become the foundation of a norm development effort by the United States or other states (or even commercial space actors):

- Do not conduct operations that foreseeably or negligently produce debris (in contrast from *intentional* production of debris mentioned above).

- Do not conduct proximity operations that would impair the safe operations or force a maneuver of another satellite.

- Do not interfere with a satellite in a way that causes loss of control or permanent loss of functionality.

- Do not interfere with military satellites playing a role in nuclear deterrence and stability (missile warning, national technical means of treaty verification, nuclear command and control, etc.).

The other major category of proposals includes variations of "[d]o not develop, deploy, threaten to use, or use space weapons." This is the catch-all for the proposals led by Russia and China, mostly related to their PPWT treaty proposal. While several states expressed interest in various facets of the discussion on banning different types of space weapons or activities related to deploying or using them, the category as a whole did not receive particularly broad support in the OEWG relative to other norm proposals.

However, many of these topics will likely be raised in the Group of Governmental Experts (GGE) on further measures of preventing an arms race in outer space that started meeting in 2023.[23] This might lead to a further bifurcation of space security diplomatic discussions, with China, Russia, and their partners promoting their preferred approach in the GGE and the group of states interested in norms of responsible behavior convening in the OEWG or other follow-on efforts.

Conclusion

This analysis did not focus specifically on which of the four potential norm proposals would be in the best interest of the United States to promote. A wide range of factors would go into such an assessment, and ultimately the United States does not need to pick a single option. Many norms will be needed to ensure the security and stability of the space domain, and each norm proposal may need to be approached in a different manner or use different diplomatic mechanisms.[24]

However, each of the four concepts has the potential to both make a positive impact and to be accepted by enough of the international community to constitute a norm. A norm against intentional production of long-lived debris could help reduce activities that would make the space environment unusable, and a norm requiring consent for rendezvous operations could set a baseline for minimizing behaviors that could be interpreted as highly threatening or escalatory. A norm against interference with critical civilian services could help ensure that security-related actions in space do not have catastrophic consequences on Earth. Any number of the transparency and communication norm concepts could help build confidence and reduce miscalculation and misunderstanding. If the U.S. government wants to take a strategic approach to norm development, looking at multiple steps into the future, senior leaders should consider now whether these ideas should form the basis for the next space security norm development effort.

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