

**Cooperation in the Final Frontier:
Preserving American Interest in the New Space Race**

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1. Introduction

As an early adopter of space technology, the US enjoyed a broad margin of space capability against potential rivals for most of the history of humanity's presence in space. The early 21st century has seen a marked increase in the number of nations asserting their ability to put objects in – and potentially project power into and through – space. Furthermore, a rapidly increasing number of commercial interests have begun investing in innovative space capabilities, such as recoverable rocket bodies, imaging and communications constellations, and missions to Mars. As more national and commercial interests enter the field, the cost of entry into space will continue to decrease, incentivizing further investment into refining current and developing new space capabilities.

As the competition over space heats up, US technological and numeric dominance in space will ebb. Accordingly, the US should maneuver to preserve its national interests in space before potential adversaries can fully close the capabilities gap. The US should collaborate with friendly nations and the UN to establish a multinational military coalition aimed at monitoring and facilitating enforcement of compliance with international space law in coordination with the UN Office of Outer Space Affairs (UNOOSA). Though it will almost certainly encounter both domestic (congressional) and international (especially Russian and Chinese) opposition, the potential benefits to both the US and the international community far exceed the costs and drawbacks.

To explore this putative line of effort, this paper first reviews a subset of designated US space missions, as well as government, military, and commercial space capabilities that the US could provide to such a force. Next, it examines the state of US and international space law, delving into emergent and future sources of conflict over space. Finally, it considers the role of a

Multinational Space Force (MNSF) within the context of international relations theory and posits a bifurcated, lead nation model for the organization similar to NORAD and USNORTHCOM.

2. Space Missions and Capabilities

The US military codifies ten categories of space operations and space-related capabilities, each of which could contribute to cooperative space governance. For the purposes of this argument, however, the most pertinent capabilities fall into three of those mission areas: Spacelift, Space Situational Awareness (SSA), and Space Control. The US has significant military, government, and commercial capabilities for these mission areas that would significantly benefit a MNSF oriented toward monitoring compliance with international space law.¹ This section explores each of these missions and some of the US national and commercial space capabilities that contribute to them.

The most straightforward of these missions, spacelift, is the ability to put objects in orbit.² The security implications of spacelift are similarly straightforward – putting satellites in orbit is fundamental to most space operations. The longest-operating spacelift provider in the US, NASA, has been putting objects in orbit since the 1950s at direction of the US federal government. Commercial enterprises, however, play an increasingly important role in spacelift, particularly in terms of innovation. SpaceX proved the viability of reusable first-stage rockets and lowered the cost of space launch 25-fold from NASA.³ Further, the FAA has approved 21 licenses for 8 companies to launch spacecraft within the US and its territories.⁴ This depth of commercial spaceflight gives US public and private sector operators unparalleled spacelift capacity. As a leading operator of spacelift capabilities, the US brings a major passive advantage

to SSA – if a US entity puts an object in orbit and registers that object in the US, then the problem of updating its tracking ephemeris is far less complicated.

With ever more spacelift providers putting objects in orbit, traffic deconfliction will grow as a problem. SSA operations allow the military to characterize and locate objects, predict their orbits based on mechanics and external factors (like space weather), and determine any threat they might pose to other objects in orbit well in advance.⁵ The US military maintains a comprehensive SSA picture through a combination of sensors, including electro-optical, radar, passive electromagnetic, and others.⁶ Further, a number of commercial enterprises have begun to contribute a broad variety of data to the SSA ecosystem (albeit on a pay-for-play basis).⁷ As such, the US has a uniquely broad and deep ability to generate a comprehensive SSA picture. By contributing a mixture of government, military, and commercial SSA data into a centralized database with tailorable access based on classification and releasability, the US could maintain a global, common-use space picture for military partners within the posited MNSF and for the international community writ large.

The final major capability the US will bring to the MNSF is Space Control. Comprised of Offensive (OSC) and Defensive (DSC) operations, space control protects space assets, assures access to the space domain, and preserves freedom of maneuver.⁸ The high level of sensitivity associated with OSC means that the US will most likely hold those capabilities for national use rather than contributing them to the MNSF. American DSC capabilities, however, would still contribute materially to the international community. Through robust SSA capabilities, US operators could assist partner nations in calculating potential conjunctions and providing collision avoidance recommendations. Should a member nation's spacecraft encounter electromagnetic interference or apparent optical dazzling, US assets and operators could assist in

geolocation, characterization, and attribution of the activity, taking care to avoid compromising sources or capabilities. Even retaining US OSC capabilities strictly for US national employment, US forces could still contribute significantly to the international space force's mission through assistance with DSC operations.

By dint of robust national and commercial spacelift, SSA, and DSC capabilities, the US is uniquely positioned to lead an international space governance compliance monitoring effort. Doing so would help preserve international access to the space domain, in keeping with the American tradition and explicit value of defending the international commons as a heritage and resource for all of mankind.⁹ Even so, American civil and military leadership must ensure that US participation in and leadership of a multinational force is in keeping with the intent of both American and international law. As such, we must establish a better understanding of the state of US national law and international agreements on the governance of space.

3. State of Space Governance

US Domestic Governance of space activity focuses on the preservation of common access to space and ensuring US leadership in the domain. Enacted in 2010, Title 51 USC compiled a number of pre-existing laws concerning space education, exploration, commercial development, funding, etc. into a single package.¹⁰ The stated goals of the law are to promote peaceful activity and the welfare of US interests in space, encourage commercial development, develop scientific and engineering knowledge, and provide early warning of threats to the Earth.¹¹ Even so, aggregating the multiple space-related laws that slowly accumulated over the course of the several decades since the US entered space means that the US takes a de facto scattershot approach to national governance of space activity. As such, much of the daily

governance of space proceeds from executive policy due to the executive's rapid responsiveness to change.

In recent years, Executive policy has roughly mirrored the priorities identified within 51USC. The Trump administration emphasized preservation of the commons for general use by humans through US leadership and competitive advantage.¹² While largely echoing earlier Trump era policy, the Biden administration has added the sustainability of space operations as a focus area.¹³ As with all Executive policy, Congress exercises funding and oversight authority over US space policy, principally through committee action (especially the House Committee on Space, Science, and Technology). The politically-charged atmosphere of Congress leads to mixed results in these critical functions, ranging from partisan confrontation and parochialism to wisdom and vision.¹⁴ The dynamics within and between the branches of government make the reform of existing law and the creation of new law governing space a byzantine process. This complexity only increases when accounting for the international community's interests and concept of space governance.

International governance of space activity falls into two broad categories: bilateral and multilateral agreements. Bilateral agreements on space are generally ad hoc instruments, limited in purpose, scope, and timescale, and bind only two parties. For instance, the 1988 Memorandum of Agreement on Liability for Satellite Launches between the Government of the United States of America and the Government of the People's Republic of China delineates liability, requirement for notification, etc. for specific launches and satellites.¹⁵ Multilateral agreements, on the other hand, tend to be broader in scope and more enduring, such as the functions of the European Space Agency or the International Space Station.¹⁶ The principal international instruments governing activities in space are a set of five treaties, supplemented from time to

time by UNGC or UNSC resolutions: The Outer Space Treaty (1967), Rescue Agreement (1968), Liability Convention (1972), Registration Convention (1976), and Moon Agreement (1984).¹⁷

Comparable to the function of the UN Convention on the Law of the Sea, these treaties assert space as a commons and a global heritage of humankind, and establish the roles and responsibilities of states in conducting space operations.¹⁸ The Outer Space Treaty (OST) is the most expansive of the treaties, covering scientific exploration, prohibition of national ownership or militarization of celestial bodies, the “mariner in distress” norm, “flagging” of and jurisdiction over spacecraft, openness, transparency, and cooperation; the remaining treaties expand and clarify topics originally introduced in the OST.¹⁹ Much like the UN Convention on the Law of the Sea, these treaties fall short in terms of governance and enforcement authority, constraining only signatory nations, and lacking means to punish spoilers. Even the critical function of preventing the militarization of space is so vulnerable to legal challenge as to challenge the practical value of the UN Treaties.²⁰

Further, all the UN space treaties came into force several decades ago, without significant revision. In the intervening years, the world has experienced massive geopolitical and technological changes. The Soviet Union no longer exists, and China has become a global power with a credible space program. Meanwhile, the space sector (particularly commercial space utilization) has grown dramatically in recent years and will likely continue to grow at an increasing pace for the foreseeable future. While the number of satellites in orbit only increased by a few dozen annually from the dawn of the space age until the 2010s, in recent years the number of new satellites has ballooned into the low thousands annually thanks to innovations in spacelift technology, the advent of microsatellite megaconstellations, and increasing penetration

of the commercial sector into space.²¹ As of late 2021, there are 4,550 satellites on orbit, almost half of which belong to US companies.²² As that number continues to increase, so will saturation of available orbital space and electromagnetic spectrum allocations.

With national and commercial actors competing to secure these scarce resources necessary to space operations, both the militarization of and conflict in space become more likely. Handberg considers the presence of more actors in space as a potential source of friction, though he does not directly address the problem of orbital slot and EM space saturation.²³ Extending his argument, competition over scarce orbital resources makes them a potential cause of conflict due to the criticality of space to many nations' national interests. Put simply, if nations will go to war over a line in the water, then they will go to war over a piece of the heavens. Accordingly, international actors might assume the US (as the most powerful actor in space) will be most interested in ensuring its own interests in space rather than preserving the international commons.

With the increasing interest of military strategists in the potential for space conflict, Congress has ample reason to approach the question of securing US national interest with a weather eye toward the space domain.²⁴ Accordingly, one might consider a strategy of continuing to build US space power in as non-provocative a manner as possible to shore up US freedom of action in space and avoid direct confrontation.²⁵ Based on this line of thinking, as US commercial interests in space expand, it might behoove congress to treat space as a sphere of unilateral US dominance to reinforce the liberal international order, rather than considering a multinational effort that could undercut US freedom of action.

Such fears of the abrogation of US autonomy, though worth considering, are misguided. Both US and international law hold space to be a commons for peaceful exploitation and

development by all people.²⁶ It is thus in the national interest for America to exercise its power in preserving common access and preventing spoilers from overexploiting space resources. The US has historically pursued a bottom-up approach to establishing international norms among spacefaring nations.²⁷ Additionally, the US has recently recommitted itself to mutual defense of the space interests of like-minded parties, such as Commonwealth and EU Nations.²⁸

Though the US would provide defensive and administrative capabilities to the MNSF under the proposed organization, the US could easily (and should) maintain full control of offensive space capabilities, as will be further elucidated in section 4. Rather than subordinating itself to the will of the international community, the US can take a principled stand as a leader of the liberal international order, opposing those nations that would dominate space and seeking coalition with those nations who desire to preserve space as a commons. By seeking consensus for a commons-oriented agenda, the US could effectively walk the line between accepting international will and preserving national interest.

The instruments and mechanisms of space governance, both in the US and in the international community, are ill-suited for the challenges of today and require a major overhaul to meet the challenges of the future. In the meantime, the US has sufficient wherewithal in terms of military and civilian space capabilities and sense of purpose to lead the international community in preserving an open and peaceful space domain. Doing so, however, will require the MNSF's organizational structure to assuage the fears of both US leadership (loss of national autonomy) and the international community (US dominance of space). To design such an organization, we turn to the organizational structure of NORAD and USNORTHCOM as an exemplary solution.

4. Establishing a Multinational Space Force

As demonstrated, the current looseness of space governance allows leeway for spoilers to flout the international order and seek to dominate space. Further, the US has significant space capabilities to unilaterally enforce the concept of space as a global commons. This section will explore the possibility of an MNSF as an instrument of monitoring and enforcing compliance with international space law. It will justify building a space coalition within the framework of international relations theory, posit a model for a multinational force, and explore the possibility of Russian and Chinese opposition to the proposed MNSF.

International Relations theory describes space policy as any other national endeavor, through the lenses of Realism (Classical and Structural), Neoliberalism, and Constructivism. From a Classical Realist perspective, conflict over space is an expansion of territorial conflict, thus nations must preserve their interests by maximizing the ability for autonomous action within this new domain.²⁹ The Classical Realist perspective, then, allows little justification for joining any space coalition due to inherent constraints on national autonomy. Structuralism, on the other hand, holds that the state of international affairs shapes the options available to an actor; as space competition evolves, so will those structures.³⁰ Within this view, joining a space coalition might be justifiable so long as it serves (or at least does not undermine) national interest.

Neoliberalism, rather than focusing on a single state acting independently, considers the actor within the international framework. Under this construct, space can serve as a venue for greater cooperation between nations (particularly democracies under Democratic Peace Theory); the difficulties of operating in space and preservation of common access will necessitate greater cooperation between nations.³¹ Constructivism, however, focuses on the effects of relations between peoples as drivers of international relations. This model holds that nations can structure

the norms of behavior in space through a constantly evolving dialogue between nations.³² Under any of these theories but Classical Realism, the US stands to gain by creating an MNSF.

Whether working within the international framework to protect national interest, promoting peace through cooperation, or collaboratively building a more desirable reality, the benefits of an MNSF to US interests are manifest. In a contested space environment, having a reliable coalition to bolster US forces and both expose and punish malign actors would provide multiple advantages – particularly mission assurance, improved technological capability, and geographic disaggregation.³³

While the US dominates space at present, a strong challenger bent on achieving hegemony over the space environment could severely impair US freedom of maneuver and ability to exploit space. By surrounding itself with coalition partners who have much to gain from cooperation, the US would give such a challenger pause – unilateral action against US space assets would court general reprisal. Furthermore, given that common access and sustainability of space operations are significant interests of the US, American policy aligns quite well with international policy.³⁴ The US should, therefore, pursue a multinational space coalition oriented toward the preservation of these values, for both its own interests and those of the community of nations.

Having established the need for an MNSF, the next considerations regard its functions, organization, and leadership/membership. Expressed US and international values to center the force include assured access, non-weaponization, and sustainability of the commons.³⁵ the force would be defensive in nature, oriented toward enforcement of international legal instruments of space governance. Based on US numeric superiority in space assets and long history of space operations, the preponderance of assets provided to the MNSF would likely be American. US

Military, Government, and Commercial entities could provide spacelift to put MNSF assets on orbit; SSA capabilities to identify, classify, and track objects in orbit; and DCS capabilities to defend MNSF and neutral objects from malign actors.

Organizationally, there are several paradigms that the MNSF could follow: Integrated, Parallel, or Lead Nation. In an Integrated structure (like NATO), the staffs and assigned forces would contain members from all member nations, subordinate to a single commander from a member nation.³⁶ This paradigm, however, would pose problems due to the high classification of space capabilities, in the US and other nations alike. On the other end of the spectrum, a Parallel structure would maintain individual national chains of command, with a Coordination Center synchronizing efforts of the member nations.³⁷ While a Parallel structure would allow the US significant autonomy in conducting operations, the inherent disaggregation of authority would run counter to the intent of the force. A Lead Nation model would subordinate individual national forces to the headquarters of a member nation designated as the lead for the force.³⁸ This model would allow a strong balance of national autonomy for member nations, while allowing the US to take a lead role in coordination and synchronization.

Extending this line of argument, the Commander of USSPACECOM is uniquely positioned to command an MNSF organized along a Lead Nation model. By aligning the MNSF as a separate organization headed by the incumbent USSPACECOM commander, he or she could exercise command authority over assigned multinational forces in coordination with their governments, while also retaining direct operational control of US space forces. The MNSF Commander's authorities would be defensive in nature and oriented toward helping UNOOSA monitor and enforce compliance with the instruments of international space governance. Meanwhile, Commander, USSPACECOM would retain control of US Space Forces (including

all offensive capabilities). Like the bifurcated authorities held by the Commander of NORAD and USNORTHCOM, the delineation of authorities would facilitate significant collaboration with partner nations while preserving US independence of action.

Based on close coordination among the Five Eyes nations on strategic issues and their current cooperation with the Combined Forces Space Component Command, it would be reasonable to assume their membership in the MNSF. Similarly, other spacefaring US allies facing significant space threats from their neighbors (e.g., Japan, Korea, and some European Space Agency members) might be enticed to join the force. Because the MNSF would work to monitor compliance with and (in coordination with UNOOSA) enforce international space law, the US should ultimately attempt to establish it as a UN force for the sake of legitimacy. If able to secure UN backing, the MNSF would command the bona fides required to ensure compliance with international law through de facto legitimized military action.

Any effort to establish a US-led MNSF as an arm of the UN, however, would necessarily meet with resistance from Russia or China. Both nations are UNSC permanent members (and thus hold veto power), and both are overtly hostile toward a US-dominated unipolar system. China especially has made major gains in space operations in recent years, seeking to establish itself as a space power equal to any other nation.³⁹ Were UNOOSA to consider granting a US-led coalition enforcement powers over space policy, these two actors would assuredly veto the measure, or possibly even take stronger action. In this scenario, the OST and other international legal instruments would remain essentially unenforceable under the auspices of the UN, relying on the good will of signatories to abide by them absent any other intervention. Given that both Russia and China are signatories of most of the international space treaties, the US would have two options to work around opposition to the MNSF by these nations: inclusion or exclusion.

For the inclusive approach, the US could invite China and Russia to join the MNSF under the purview of the UN. US and UN officials could depict membership in the MNSF as a significant Transparency and Confidence-Building Measure pursuant to their OST signatory status.⁴⁰ Further, the US government could offer MNSF members perquisites such as improvements in trade status or greater collaboration in space exploration initiatives to entice hesitant nations to become involved. In case either or both of these nations remain intransigent, however, the US should pursue an exclusive approach.

Under the exclusive approach, US leadership would clarify that UN sanction of the MNSF is desirable for the sake of legitimacy, but not required for actual conduct of the intended, defensive range of operations. Much as the US regularly operates either autonomously or in concert with allies and partners to enforce freedom of navigation on the seas, the US is similarly willing to monitor and facilitate enforcement of international values and international law in space without UN mandate. US leadership would thus place Russia and China on the horns of a dilemma: either opt for the benefits of MNSF membership or set themselves explicitly in opposition to international will.

5. Conclusion

While US advantage in space appears to be waning, the establishment of an MNSF would position the US favorably within the international order to ensure the preservation of its national interests. Current military, government, and civilian space capabilities make the US the nation best disposed to uphold the international order in space. Additionally, though US and international space law are not optimally designed for the challenges of the modern age, the concordance of their guiding principles is unmistakable. Because of both these points,

establishment of an MNSF under US leadership is desirable for both the US and the international community. Accordingly, the proposed MNSF is a desirable step to ensure the US maintains its relevance as a leader of the current international order.

The MNSF would significantly improve the security of space for both current spacefaring nations and aspirants alike. By assuring access to space as a global commons and enforcing compliance with the agreed-upon laws governing its exploration and exploitation, the MNSF would promote peaceful relations between all nations. Because the values of the MNSF would accord broadly with the explicit values of the UN, it would be a perfect enforcement arm for the space laws approved by that body. Alignment of the MNSF under US leadership would ensure that the force have sufficient capability to punish malign actors, while also guaranteeing the US a continuing position of power and influence among the international community for the foreseeable future. Finally, the bifurcation of authorities between the MNSF (defensive) and USSPACECOM (offensive) would secure significant treaty monitoring and enforcement capability to UNOOSA while preserving American potential for autonomous action.

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- ²⁷ Scott Pace, “Space Law and the Advancement of Spacepower,” in *Toward a Theory of Spacepower: Selected Essays*, ed. Charles D. Lutes and Peter L. Hays with Vincent A. Manzo, Lisa M. Yambrick, and M. Elaine Bunn, (Washington: National Defense University Press, 2010), p. 306.
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Compare to Polkowska and UN OST.

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³⁷ *Ibid*, II-7.

³⁸ *Ibid*, II-6.

³⁹ Yanping Chen, “China's space policy-a historical review,” *Space Policy* 37 (August 2016), pp. 171-178.

<https://doi.org/10.1016/j.spacepol.2016.12.001>

⁴⁰ Rajagopalan, *The OST*, and Hays, “Space Law,” pp. 304-306.