
**A New Era in the Weaponization of Space: The U.S. Space
Force & An Update to the Outer Space Treaty**

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I. INTRODUCTION

On August 9, 2018, Vice President Pence announced that the United States is in the process of creating a “new” and “separate” branch of the United States

Department of Defense called the United States Space Force (“Space Force”).¹ On the same day, the Department of Defense released a report (“Space Force Report”) that was prepared for the Congressional Defense Committees; it specifically states how the United States plans to create, operate, and maintain the new Space Force.² The Space Force Report calls for the creation of a “U.S. Space Command to improve and evolve *space warfighting*, including integrating innovative force designs, concepts of operation, doctrines, tactics, techniques and procedures.”³ The United States Space Command currently in existence is complementary to the Space Force and will assist the Space Force as it represents a unified command structure where all branches of the military are represented.⁴

The aggressive language in the Report calls into question the United States’ commitment to the major international space treaty, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (“Outer Space Treaty”), that was adopted by the U.N. General Assembly over half a century ago for the “use of outer space for peaceful purposes.”⁵

The announcement of a United States Space Force, which mirrors Russian and Chinese consolidation of space assets into one military branch,⁶ may prove to be an opportunity for the international community to clarify and update defunct international space law. New changes must be made to binding international space law to match the increasing militarization of space and to limit the creation of space debris. Any change to the international space law that hopes to be successful must include all three major space powers: The

¹ See *Vice President Pence Announcement on Space Force*, C-SPAN (Aug. 9, 2018), <https://www.c-span.org/video/?449656-1/vice-president-pence-announces-creation-space-force>.

² U.S. DEP’T OF DEF., FINAL REPORT ON ORGANIZATIONAL AND MANAGEMENT STRUCTURE FOR THE NATIONAL SECURITY SPACE COMPONENTS OF THE DEPARTMENT OF DEFENSE (2018)), <https://media.defense.gov/2018/Aug/09/2001952764/-1/-1/1/ORGANIZATIONAL-MANAGEMENT-STRUCTURE-DOD-NATIONAL-SECURITY-SPACE-COMPONENTS.PDF> [hereinafter SPACE FORCE REPORT].

³ *Id.* at 4 (emphasis added).

⁴ UNITED STATES SPACE COMMAND FACT SHEET, DEP’T OF DEF. (Aug. 29, 2019), <https://www.spacecom.mil/About/Fact-Sheets-Editor/Article/1948216/united-states-space-command-fact-sheet/>. The United State Space Command is also assisting in the creation of the Space Force and is the public face of the proposed Space Force. See @United States Space Force (@SpaceForceDoD), Twitter (Jan. 24, 2020, 6:53 PM), <https://twitter.com/SpaceForceDoD/status/1220872402046865408> (announcing the Space Force seal).

⁵ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, pmbl., Dec. 19, 1966, 18 UST 2410, G.A. Treaty 2222 (XXI) [hereinafter Outer Space Treaty].

⁶ See discussion, *infra* §§ V.a. & V.b.

United States, China, and Russia.⁷ Limiting the creation of space debris is a common interest held by all parties and could be the common interest that pulls all parties together. To find a possible way forward this Note will review international space law, the threat of space debris, United States space policy, and Russian and Chinese capabilities.

II. CURRENT INTERNATIONAL SPACE LAW

It is important to understand the current treaties in determining whether the creation of a Space Force violates international space law. In 1967, during the height of the Cold War, the United States, Soviet Union, and international community created, drafted, signed, and ratified four important space treaties in eight years.⁸

A. *Binding International Space Law*

These four treaties are especially significant because they are all signed and ratified by the United States, Russia (formally known as Union of Soviet Socialist Republics (Soviet Union))⁹, the People's Republic of China, and many other countries.¹⁰ Unlike most other international treaties, the Outer Space Treaty is binding international law for China, the Soviet Union, and the United States.¹¹ The Outer Space Treaty was ratified by the United States Senate and

⁷ David A. Koplow, *The Fault Is Not in Our Stars: Avoiding an Arms Race in Outer Space*, 59 HARV. INT'L L.J. 331, 364 (2018).

⁸ Comm. on the Peaceful Uses of Outer Space, Status of International Agreements Relating to Activities in Outer Space as at 1 January 2018, U.N. Doc. A/AC.105/C.2/2018/CRP.3 (Apr. 9, 2018); U.S. Dep't of State, *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, <https://www.state.gov/isn/5181.htm> (last visited Feb. 4, 2020).

⁹ The Russian Federation is considered a successor state to the Soviet Union and "is generally considered to continue the legal personality of" the Soviet Union. Andreas Zimmermann, *State Succession in Treaties*, MAX PLANCK ENCYCLOPEDIA PUB. INT'L L., § D(4) (last updated Nov. 2006). "Accordingly the continuing State [Russian Federation] automatically continues all treaty relations of the predecessor State . . ." *Id.* This passing of obligations from previous state to successor is not codified. Rein Mullerson, *The Continuity and Succession of States, by Reference to the Former USSR and Yugoslavia*, 42(3) INT'L & COMP. L.Q., 473, 474 (1993). Rather it is "a set of generally recognized norms of customary international law." *Id.* Russia held out to the international community that they were the continuation and successor to the Soviet Union and that they would be bound by the same international obligation and benefits retained by the Soviet Union. *Id.* at 475–80. Russia has promoted itself as a continuation of the Soviet Union, so under international customary law—which is not codified—"any treaty that was in force for the entire territory of the predecessor state is presumed to continue in force for each separating state." George Bunn & John B. Rhineland, *The Arms Control Obligations of the Former Soviet Union*, 33 VA. J. INT'L L. 323, 327 (1993).

¹⁰ Comm. on the Peaceful Uses of Outer Space, *supra* note 8, at 1–2.

¹¹ *Id.*

“entered into force on October 10, 1967.”¹² When the Outer Space Treaty entered into force, the United States expressed its intention to be bound by the treaty; the United States completed all four requirements for a treaty to enter into force: “(1) the intention of the parties to be bound under international law, (2) the significance of the agreement, (3) the specificity of the agreement, and (4) the form of the agreement.”¹³

The historical background of the Outer Space Treaty shows how important it was at the time and how it formed the base for international space agreements. The Outer Space Treaty was created because both the United States and the Soviet Union created the Outer Space Treaty because they saw that whichever country developed the ability of putting nuclear weapons in space first would have a dominant advantage over all other countries.¹⁴ The two main focuses of the Outer Space Treaty are to stop the proliferation of nuclear weapons into space and to prohibit conventional military use on “the moon and other celestial bodies.”¹⁵

The Outer Space Treaty is considered the most influential treaty in the current body of Space Law.¹⁶ The fourth and the ninth articles of the Outer Space Treaty, regarding space weaponization, are paradoxically the articles that focus on the peaceful uses of space.¹⁷ Article IV demands that the states who ratified the treaty shall not place “weapons of mass destruction . . . in outer space” nor shall they create any kind of weapons installation on “celestial bodies.”¹⁸ Article IX states that the “exploration and use of outer space” shall be done only in a “peaceful” manner.¹⁹ If one state sees another acting in a “potentially harmful” manner, the state “may request consultation concerning the activity or experiment.”²⁰ Article IX wants “co-operation and mutual

¹² U.S. Dep’t of State, *supra* note 8. For a treaty to enter into force, after the Senate assents and gives their “advice and consent” by a two-thirds vote, the President decides whether to ratify the treaty. Frederic L. Kirgis, *International Agreements and U.S. Law*, 2 AM. SOC’Y INT’L L. (May 27, 1997), <https://www.asil.org/insights/volume/2/issue/5/international-agreements-and-us-law> (describing that because the Outer Space Treaty has been ratified, it is a “self-executing” treaty that has the same effect in the court system as an act of Congress); CONG. RESEARCH SERV., 106TH CONG., TREATIES AND OTHER INTERNATIONAL AGREEMENTS: THE ROLE OF THE UNITED STATES SENATE (COMM. PRINT 2001).

¹³ TREATIES AND OTHER INTERNATIONAL AGREEMENTS: THE ROLE OF THE UNITED STATE SENATE, *supra* note 12, at 50; U.S. Dep’t of State, *supra* note 8.

¹⁴ U.S. Dep’t of State, *supra* note 8.

¹⁵ *Id.*; see also Outer Space Treaty, *supra* note 5.

¹⁶ Rada Popova & Volker Schaus, *The Legal Framework for Space Debris Remediation as a Tool for Sustainability in Outer Space*, INST. AIR & SPACE L. (May 9, 2018).

¹⁷ See Outer Space Treaty, *supra* note 5, art. 4, 9.

¹⁸ *Id.* art. 4.

¹⁹ *Id.* art. 9.

²⁰ *Id.*

assistance,” between the states, “with due regard to the corresponding interests of all other States Parties to the Treaty.”²¹ Both Article VI and Article IX promote the Outer Space Treaty’s desire to have all uses of space be for “peaceful purposes.”²²

The United States and the Soviet Union were originally at odds concerning what should be included in the Outer Space Treaty. Specifically, the scope of the Outer Space Treaty was originally a point of contention between the United States and the Soviet Union.²³ The draft created by the United States only restricted weaponization to the moon and other celestial bodies, while “the Soviet [Unions’] draft covered the whole outer space environment.”²⁴ The Soviet Union eventually went along with the United States’ wording because it knew it was in its best interest to have some sort of international agreement.²⁵ Even before the treaty was signed, there were backroom conversations that dealt with the issue of “the use of military equipment and personnel in space exploration.”²⁶

Even over fifty years ago, the major world powers knew that where there were multi-million-dollar spacecraft flying around at extreme speeds, there were sure to be collisions with expensive repercussions. The Outer Space Treaty does have articles that relate to liability for damages, but they are extremely limited.²⁷ According to Article VI of the Outer Space Treaty, states retain “international responsibility” for any accidents that were generated by a launch from their state.²⁸ “Article VII provides generally that virtually any State directly participating in a launch can be rendered internationally liable if damage is caused by the launched object. Article IX imposes a duty to refrain from hazardous activities without first consulting the proper parties.”²⁹ Intelligently, “[r]ealizing the inadequacy of the Outer Space Treaty for resolving space law disputes,” the major world powers came together again to draft, sign, and ratify the Liability Convention, which was an attempt to fill the holes left by the Outer Space Treaty.³⁰

²¹ *Id.*

²² Outer Space Treaty, *supra* note 5, pmb1.

²³ U.S. Dep’t of State, *supra* note 8 (explaining that at the time of the signing, there were other test bans recently put in place including the Limited Test Ban Treaty.).

²⁴ *Id.*

²⁵ *Id.*

²⁶ *Id.*

²⁷ Outer Space Treaty, *supra* note 5, art. VI, VII, IX; James P. Lampertius, *The Need for an Effective Liability Regime for Damage Caused by Debris in Outer Space*, 13 MICH. J. INT’L L. 447, 452 (1992).

²⁸ Outer Space Treaty, *supra* note 5, art. VI.

²⁹ Lampertius, *supra* note 27, at 452; Outer Space Treaty, *supra* note 5, art. VII, IX.

³⁰ Lampertius, *supra* note 27, at 452.

The Convention on International Liability for Damage Caused by Space Objects (“Liability Convention”) was adopted by the U.N. General Assembly in 1971 to expand the liability rules laid out in the Outer Space Treaty.³¹ The Liability Convention has been influential, but not as widely utilized as the Outer Space Treaty.³² The Liability Convention attempts to provide a framework for holding a potential party responsible when its space debris causes damage.³³ Under the text of the Liability Convention, the state that launches or has a private launch from its territory is responsible for any damage caused by the space object or its debris in space, on earth, and in the air between the surface of the earth and space.³⁴

The Outer Space Treaty was created over half a century ago.³⁵ Therefore, it could not possibly address the technological advances made in the past half-century, and it certainly was not made to address a world that is so dependent on resources located in space.³⁶ The Outer Space Treaty does not contemplate or address any type of satellite targeting or any other form of space warfighting outside of nuclear weapons and military outposts on the moon or other celestial bodies.³⁷

B. Interpretation of Binding International Space Law

The Outer Space Treaty “[r]ecogniz[es] the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes.”³⁸ There is a lot of disagreement over what “peaceful purposes” truly means in the Outer Space Treaty. The major powers interpret this term loosely to mean that passive or non-aggressive military activity is allowed under the

³¹ See Convention on International Liability for Damage Caused by Space Objects, pmbl., Nov. 29, 1971, 24 UST 2389, G.A. Res. 2777 (XXVI) [hereinafter Liability Convention].

³² The other two treaties are not within the scope of this Note but the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space and the Convention on Registration of Objects Launched into Outer Space have both been influential in their respective situations as they were ratified by the major space powers. See Comm. on the Peaceful Uses of Outer Space, *supra* note 8; Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, Dec. 19, 1967, 19 UST 7570, G.A. Res. 2345 (XXII); Convention on the Registration of Objects Launched into Outer Space, Nov. 12, 1974, 28 U.S.T. 695, G.A. Res. 3235 (XXIX).

³³ See generally Liability Convention, *supra* note 31.

³⁴ *Id.* art. II & III. The Liability Convention does make a distinction between damaged caused on earth by falling objects and damaged occurring in space. *Id.* The main difference is that there is absolute liability for objects that fall to earth, but there is an added fault requirement for damaged inflicted on an object that remains in space. *Id.* See discussion *infra* I.b.

³⁵ See Comm. on the Peaceful Uses of Outer Space, *supra* note 8.

³⁶ Emily Taft, Note, *Outer Space: The Final Frontier or the Final Battlefield?*, 15 DUKE L. & TECH. REV. 362, 369 (2017).

³⁷ *Id.* at 366.

³⁸ Outer Space Treaty, *supra* note 5, pmbl.

treaty.³⁹ The Outer Space Treaty limits the use of space to peaceful purposes, which has been construed by the major world powers to mean any action that is “non-aggressive.”⁴⁰ The United States’ stance on “peaceful purposes” has consistently included the operation of “defense and intelligence-related activities”⁴¹ along with “national and homeland security activities.”⁴²

Under the Trump administration, it is even clearer that the United States plans to conduct passive military activities in space, because the only time the word “peace” is mentioned in the administration’s space policy is when it is followed by the words “through strength.”⁴³ The new Space Force Report also speaks of “peace through strength” as a guiding mantra that led to the development of the report.⁴⁴ The United States’ 2019 Missile Defense Review proclaims that the United States’ systems are in place for “active defense of the [United States] homeland and deployed forces, allies, and partners.”⁴⁵ The United States seemingly construes “peaceful purposes” to mean peace through military might.⁴⁶ This stance may not technically violate the Outer Space Treaty, but it is certainly contrary to the original goals the Outer Space Treaty put forth.⁴⁷

Similar to the Outer Space Treaty, the Liability Convention is also scrutinized for its lack of clarity.⁴⁸ States agree that any harm created by space debris—which the treaty refers to as a “space object[s]”⁴⁹—puts strict liability

³⁹ WHITE HOUSE, NATIONAL SPACE POLICY OF THE UNITED STATES OF AMERICA 3 (2010), https://obamawhitehouse.archives.gov/sites/default/files/national_space_policy_6-28-10.pdf [hereinafter OBAMA NATIONAL SPACE POLICY]; Taft, *supra* note 36, at 366.

⁴⁰ Dale Stephens & Cassandra Steer, *Conflicts in Space: International Humanitarian Law and its Application to Space Warfare*, 40 ANNALS AIR & SPACE L. 71, 74 (2015).

⁴¹ Presidential Decision Directive, U.S. National Space Policy 1, 1 (2006), <https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/national-space-policy-2006.pdf> [hereinafter Bush National Space Policy] (explaining that the Bush National Space Policy was issued August 31, 2006, but it was kept confidential until the Obama Administration).

⁴² OBAMA NATIONAL SPACE POLICY, *supra* note 39, at 3.

⁴³ See *President Donald J. Trump is Unveiling an America First National Space Strategy*, WHITEHOUSE.GOV (Mar. 23, 2018), <https://www.whitehouse.gov/briefings-statements/president-donald-j-trump-unveiling-america-first-national-space-strategy/> [hereinafter *Trump National Space Policy*].

⁴⁴ SPACE FORCE REPORT, *supra* note 2, at 3.

⁴⁵ U.S. DEPT OF DEF., 2019 MISSILE DEFENSE REVIEW, XI (Jan. 17, 2018).

⁴⁶ See discussion *infra* Section III.c.

⁴⁷ See discussion *supra* Section II.a.

⁴⁸ See Lampertius, *supra* note 27, at 453–54.

⁴⁹ Liability Convention, *supra* note 31, art. I (defining the term “space object” as “component parts of a space object as well as its launch vehicle and parts thereof”). There is some question as to if space debris is considered a space object, but even under strict construction space debris likely will constitute a space object because “it is matter originating from component parts of space objects. . . .” Lampertius, *supra* note 27, at 453.

on the “launching state.”⁵⁰ Article III deals with damage caused by space debris everywhere other than on earth’s surface or damage to an aircraft of “another launching State.”⁵¹ Strict liability in space only falls on the state that created the debris when “the damage is due to its fault or the fault of persons for whom it is responsible.”⁵² The Liability Convention is clear on the fact that when a state or private actor intentionally creates space debris, the launching state is liable for the damage created by that debris in space, on the ground, and in the air between space and the surface of the earth.

The Liability Convention is problematic because it has never been fully implemented. No country has used it in any liability-creating situation, including objects crashing to earth and objects colliding in orbit. Canada somewhat successfully used it once after the Kosmos 954 satellite crashed down in Canada in 1978.⁵³ Kosmos 954, a Russian satellite, fell from space, spreading “bits of the highly radioactive core over some 124,000 kilometers” of northern Canada.⁵⁴ Since the recovery cost over 12 million dollars, Canada filed a claim against the Soviet Union for 6 million dollars using the Liability Convention as the basis for their claim.⁵⁵ The case eventually settled for 3 million dollars.⁵⁶ Even though this case dealt with the damages on land and not in space, it proved that the Liability Convention was enough of a basis to compel a world power to pay out a settlement. This settlement is the only time a country has implemented it, so there is no information as to if the Liability Convention is a strong enough basis for a state to win a case on the merits.

Even though States have intentionally created space debris and this debris has damaged another nation’s property in space, no State has ever attempted to use the Liability Convention to receive damages. In 2013, a piece of Chinese

⁵⁰ Liability Convention, *supra* note 30, art. II. A launching state is defined as “[a] State which launches or procures the launching of a space object . . . [or] [a] State from whose territory or facility a space object is launched.” *Id.* art. I. This means that a nation is liable for the debris created by the private launches that take place on its land or from its facilities along with the launches conducted by the state itself.

⁵¹ *Id.* art. III.

⁵² *Id.*

⁵³ Marc Montgomery, *Canada History: Jan 24, 1978 Soviet radiation across the Arctic*, RADIO CAN. INT’L (Jan. 24, 2017), <http://www.rcinet.ca/en/2017/01/24/canada-history-jan-24-1978-soviet-radiation-across-the-arctic/>.

⁵⁴ *Id.*

⁵⁵ *Canada: Claim Against the Union of Soviet Socialist Republics for Damage Caused by Soviet Cosmos 954*, Int’l Legal Materials, 18(4) 899, 905 (1979) [hereinafter *Soviet Cosmos 954 Claim*] (presenting the legal framework where Canada’s claim presented to the Soviet Union’s Ambassador in Ottawa relied on).

⁵⁶ *Protocol Between the Government of Canada and the Government of the Union of Soviet Socialist Republics*, Moscow (Apr. 2, 1981), http://www.jaxa.jp/library/space_law/chapter_3/3-2-2-1_e.html.

space debris left over from a 2007 ballistic missile test, hit a Russian satellite.⁵⁷ Unlike Canada in the Kosmos 954 incident,⁵⁸ no party filed a claim under the Liability Convention, even though the collision destroyed the satellite's functionality.⁵⁹ Perhaps one consideration in not filing a claim was that the satellite was "relatively inexpensive" and filing an international claim would introduce costly litigation. Additionally, the suit may have created stress between Russia and China's "geopolitical cooperation."⁶⁰ Another explanation is that Russia saw there has not been another reported case of intentionally created space debris damaging the property of another state, and they were unsure if it would be successful.

The United Nations drafted the Liability Convention over fifty years ago, and it has not kept up with the increasing assets in space.⁶¹ The authors could not have anticipated how dependent the world would be on space assets. Specifically, the lack of a standard for assigning fault creates an issue for private interests in space.⁶² The drafters of the Liability Convention would not have seen private interests in space as a problem due to the massive cost of launching objects into orbit and because "of the mere handful of space vehicles operating in the vast reaches of space, one might expect collision or interference only as an extreme rarity."⁶³ That is no longer the case, and according to the U.N. Office for Outer Space Affairs, there are currently 9,286 objects in space, which has gone up from 8,227 objects on November 2, 2018.⁶⁴ This is just the number of objects tracked by the U.N.⁶⁵ According to NASA "[m]ore than 500,000 pieces of debris . . . are tracked as they orbit the Earth."⁶⁶

C. Stagnation and Non-Binding International Space Law

⁵⁷ Melissa Gray, *Chinese space debris hits Russian satellite, scientists say*, CNN (last updated 10:03 PM, Mar. 9, 2013), <https://www.cnn.com/2013/03/09/tech/satellite-hit/index.html>.

⁵⁸ *Soviet Cosmos 954 Claim*, *supra* note 55, at 7.

⁵⁹ *Id.*

⁶⁰ Mike Wall & Leonard David, *Legal Action Against China Unlikely in Space Junk Crash with Russian Satellite*, SPACE.COM (Mar. 12, 2017, 7:00 AM), <https://www.space.com/20173-china-space-junk-crash-lawsuit.html>.

⁶¹ *See* Comm. on the Peaceful Uses of Outer Space, *supra* note 8.

⁶² *See* Lampertius, *supra* note 27, at 453–54.

⁶³ Herbert Reis, *Some Reflections on the Liability Convention for Outer Space*, 6 J. SPACE L. 125, 127 (1978).

⁶⁴ *Online Index of Objects Launched into Outer Space*, U.N. OFF. FOR OUTER SPACE AFF., http://www.unoosa.org/oosa/osoindex/search-ng.jsp?lf_id= (last visited Mar. 5, 2020, 4:45 PM).

⁶⁵ *Id.*

⁶⁶ *Space Debris and Human Spacecraft*, NASA (Sept. 26, 2013), https://www.nasa.gov/mission_pages/station/news/orbital_debris.html. For more discussion, see discussion *infra* Section V.c.

Modern international space treaties have failed to pass in the U.N. General Assembly due to the United States expressing displeasure. “In 1990 the United States stated that it ‘has not identified any practical outer space arms control measures that can be dealt within a multilateral environment.’”⁶⁷ Anything that passes in the U.N. General Assembly is unable to gain acceptance if the United States does not lend support because other nations see the lack of support as open disapproval by the United States.⁶⁸ Historically, the United States maintained a dominant “technological advantage[]” in space, so the international community followed its lead when it came to space agreements.⁶⁹ The international community has been inactive in creating new binding international space law partly because the United States has been comfortable with how the weaponization of space has developed.⁷⁰

The U.N. has created guidelines for states to follow regarding the creation of debris in space, but this is non-binding international law, so states do not face any sanctions if they do not follow the guidelines.⁷¹ Instead, the guidelines function more as goals that the international community hopes to attain as it “invite[s] Member States to implement [the] guidelines through relevant national mechanisms.”⁷² Only the four treaties from nearly a half a century ago are currently binding international law. Ever since then, States either ignored every treaty or, in the best-case scenario, looked at them as aspirational treaties.⁷³

Even though the guidelines are not enforceable, they do represent the focus of the international community and show which problems the world—outside of the United States—finds worrying. Only one guideline addresses the intentional destruction of satellites through “harmful activities.”⁷⁴ The problem with the article is that it is vague, saying such destruction should be avoided with no guidance on how to limit the problem.⁷⁵

⁶⁷ *Proposed Prevention of an Arms Race in Space (PAROS) Treaty*, NTI, <https://www.nti.org/learn/treaties-and-regimes/proposed-prevention-arms-race-space-paros-treaty/> (last updated Sept. 29, 2017).

⁶⁸ *Id.*

⁶⁹ *Id.*

⁷⁰ Brian Israel, *Agora: The End of Treaties? Treaty Stasis*, 108 AJIL UNBOUND 63, 64 (2014).

⁷¹ *See* Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space, U.N. Doc. A/AC.105/C.1/L.260 (Annex) (2010).

⁷² *Id.* at iv (reiterating the 2007 Space Debris Mitigation Guidelines’ invitation and hope that others will see and use the provided guidelines).

⁷³ *See* discussion *supra* Section I.a.

⁷⁴ Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space, *supra* note 71, guideline 4.

⁷⁵ *Id.*

In 2008, Russia and China took the international lead and introduced the Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects⁷⁶ to the Conference on Disarmament, but the United States did not support the treaty.⁷⁷ The United States felt that it was “a diplomatic ploy by the two nations to gain a military advantage.”⁷⁸ The U.N. has continued to back Russian and Chinese efforts to stop the weaponization of space and issued a resolution in 2015 to emphasize the urgency of the project in the hope of a multinational treaty.⁷⁹ China and Russia have tried multiple times to create binding international law, but the United States has constantly stopped them.⁸⁰

Even without United States’ leadership the international community has strived to create international guidelines. In 2017, the U.N. Committee on the Peaceful Uses of Outer Space established 28 “[g]uidelines for the long-term sustainability of outer space activities.”⁸¹ This document does show a possible starting point for any future treaties regarding space, because it is well known and generally followed by the international community.⁸² These guidelines are not binding on member states, but have gained an international following.⁸³ The guidelines focus mostly on the sharing of information regarding “space objects,”⁸⁴ but they do make a point to include notes about the importance of the sustainability of access to space and the issue that debris poses.⁸⁵ Notably missing from this document is any mention of the intentional creation of space debris, which the older *Space Debris Mitigation Guidelines of the Committee*

⁷⁶ *Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (Draft)*, REACHING CRITICAL WILL (June 16, 2014), <http://www.reachingcriticalwill.org/images/documents/Disarmament-fora/cd/2008/documents/Draft%20PPWT.pdf>.

⁷⁷ *Proposed Prevention of an Arms Race in Space (PAROS) Treaty*, *supra* note 67. “The CD was formed in 1979 as the single multilateral disarmament negotiation forum of the international community. . . .” *Id.*

⁷⁸ *Id.*

⁷⁹ Tasha Young (Rapporteur on the Prevention of an Arms Race in Outer Space), *Report of the First Committee on the Prevention of an Arms Race in Outer Space*, § III, U.N. Doc. A/70/458 (Nov. 18, 2015) (“Reaffirming its recognition that the legal regime applicable to outer space by itself does not guarantee prevention of an arms race in outer space and that there is a need to consolidate and reinforce that regime . . .”).

⁸⁰ *Proposed Prevention of an Arms Race in Space (PAROS) Treaty*, *supra* note 67.

⁸¹ Comm. on the Peaceful Uses of Outer Space, Working paper by the Chair of the Working Group on the Longterm Sustainability of Outer Space Activities on Its Sixtieth Session, U.N. Doc. A/AC.105/2017/CRP.26 (June 7–16, 2017) [hereinafter *Guidelines for the Long Term Sustainability of Outer Space Activities*].

⁸² Koplou, *supra* note 7, at 351.

⁸³ *Id.*

⁸⁴ *Guidelines for the Long Term Sustainability of Outer Space Activities*, *supra* note 81, at 5–6.

⁸⁵ *Id.* at 10–11.

on the Peaceful Uses of Outer Space mentions.⁸⁶ Rather, the document focuses on the accidental creation of space debris and ways to actively remove debris from space.⁸⁷

III. THE IMMINENT THREAT POSED BY SPACE DEBRIS

The issue in the buildup of space debris is not a new issue⁸⁸ but has recently been getting more international attention.⁸⁹ The surge in space activity has led to a huge amount of debris in space, and it only continues to expand.⁹⁰ Since the passage of the Outer Space treaty, “the space around the Earth has gone from a virtually debris-free environment to a zone cluttered with man-made objects”⁹¹ Amazingly, a mere six percent of all objects in space are “functional objects.”⁹² The Department of Defense and NASA share the duty to track space debris for the United States government.⁹³ Space debris has forced many delays and maneuvers in order to avoid catastrophic damage to space vessels, including the International Space Station.⁹⁴

“[O]rbital debris is not addressed explicitly” in the binding international law even though the hazards it poses are getting more attention.⁹⁵ Some states have already acted on the threat and have “developed their own space debris mitigation standards based on” the guidelines created by the U.N. Office for Outer Space Affairs.⁹⁶ The United States, China, and Russia recognize space

⁸⁶ Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space, *supra* note 71, guideline 4.

⁸⁷ Guidelines for the Long Term Sustainability of Outer Space Activities, *supra* note 81, at 11.

⁸⁸ See generally Lampertius, *supra* note 27.

⁸⁹ See generally Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space, *supra* note 71; Report of the Committee on the Peaceful Uses of Outer Space, G.A. U.N. Doc. A/69/20, 16–17 (June 11–20, 2014).

⁹⁰ Space Traffic Management Conference, Loretta Hall, *The History of Space Debris*, 1, 6 (2014).

⁹¹ *Id.* at 1.

⁹² Popova & Schaus, *supra* note 16, at 2.

⁹³ *Space Debris and Human Spacecraft*, *supra* note 66 (“NASA and the DoD cooperate and share responsibilities for characterizing the satellite (including orbital debris) environment. DoD’s Space Surveillance Network tracks discrete objects as small as 2 inches (5 centimeters) in diameter in low Earth orbit and about 1 yard (1 meter) in geosynchronous orbit. Currently, about 15,000 officially cataloged objects are still in orbit. The total number of tracked objects exceeds 21,000.”)

⁹⁴ Space Traffic Management Conference, *supra* note 90, at 8–10 (suggesting that one zone of earth’s orbit is so clogged with space debris that it may be at a “critical density” where debris will increase from collision even if no new satellites are introduced to that orbit); Popova & Schaus, *supra* note 16, at 2.

⁹⁵ NAT’L RESEARCH COUNCIL, *SPACE LAW AND ORBITAL DEBRIS (APPENDIX A TO) ORBITAL DEBRIS: A TECHNICAL ASSESSMENT*, 185 (1995).

⁹⁶ Report of the Committee on the Peaceful Uses of Outer Space, *supra* note 89, at 16.

debris as a threat to the use of space for their respective military organizations and for use by their private citizens.⁹⁷

IV. CONSTITUTIONALITY OF A UNITED STATES SPACE FORCE

Some scholars scrutinize the creation of a brand new branch of the military, namely, the Space Force, for being unconstitutional.⁹⁸ The Space Force Report itself looks to have Congress “[r]evis[e] title 10 of U.S. Code to establish service and support functions and leadership authorities of the Space Force as the sixth branch of the Armed Forces”⁹⁹ Congress is the governmental branch that has the exclusive power “[t]o raise and support Armies . . . and maintain a Navy.”¹⁰⁰ The Constitution grants the President the power of “Commander in Chief of the Army and Navy of the United States,” but that does not explicitly allow the executive branch to unilaterally create a new military branch.¹⁰¹

A textual approach to the constitutionality of the United States Space Force would deny its creation by any branch of government because the constitution only explicitly states that the national force is to include an army and a navy.¹⁰² This is similar to the argument that questioned the creation of the Air Force as an independent branch of the military following World War Two.¹⁰³

One way to justify the Air Force and Space Force is through the Necessary and Proper Clause of the Constitution or they could be justified under the fact that their functions are “related to space operations already carried out by the various services” and would thus “already constitute a land and naval force under the Constitution.”¹⁰⁴ Either way, the creation of the Space Force is unlikely to be constitutionally challenged because national security worries

⁹⁷ JOINT FORCE DEV., SPACE OPERATIONS, viii (2018). Russia and China participated extensively with the United Nations’ Committee on the Peaceful Uses of Outer Space to create their report in 2014. See generally Report of the Committee on the Peaceful Uses of Outer Space, *supra* note 89.

⁹⁸ See Sandra Erwin, *Analysts: Space Force will test constitutional separation of powers*, SPACE NEWS (Aug. 21, 2018), <https://spacenews.com/analysts-space-force-will-test-constitutional-separation-of-powers/>; Alex Ward, *Trump really, really wants troops in space*, VOX, <https://www.vox.com/2018/6/18/17475444/trump-space-force-speech-air-force-congress>, (last updated June 18, 2018).

⁹⁹ Space Force Report, *supra* note 2, at 11.

¹⁰⁰ U.S. Const. art. I, § 8.

¹⁰¹ U.S. Const. art. II.

¹⁰² Scott Bomboy, *The Space Force and the Constitution*, NAT’L CONST. CTR. (Aug. 22, 2018), <https://constitutioncenter.org/blog/the-space-force-and-the-constitution>.

¹⁰³ *Id.*

¹⁰⁴ *Id.*; *Toward the Creation of a U.S. “Space Force”*, CONG. RES. SERV., 2 (Aug. 16, 2018).

would have us support any existing military organizational structure and because the Air Force has never been challenged and its creation rests on essentially the same grounds.¹⁰⁵

V. UNITED STATES SPACE POLICY THAT HAS LED TO THE CREATION OF A SPACE FORCE

The Bush, Obama, and Trump administrations have extremely different approaches regarding the weaponization of space. Only four international space treaties—including the Outer Space Treaty and the Liability Convention—are binding on the United States, and they have not changed for over fifty years.¹⁰⁶ Even though the space treaties that bind the United States have remained unaltered, the Bush, Obama, and Trump administrations have swung wildly pro or against international cooperation and offensive weaponization. Throughout these presidencies, clear distinctions have arisen regarding the space weaponization policies, with varying stances on the involvement of the international community at large, and the limitations of weaponization itself. The next part of this Note compares and contrasts the presidential space policies from the Bush to the Trump administrations.

A. Bush's National Space Policy

Even before the 2000s, the issues surrounding warfighting in space changed significantly starting in the 1990s. Beginning with the Gulf War in 1990–91, the military powers of the world recognized that “space-based assets” were critical to modern militaries and would become even more important in the future.¹⁰⁷ The importance of “space-based assets” has continued to grow in the years since the Gulf War.

In 2006, the Bush administration pushed out a new United States National Space Policy, which attempted to wrap its contentious intentions in defensive language but was actually quite aggressive.¹⁰⁸ The policy highlighted the United States’ willingness to stretch its reading of the Outer Space Treaty and the “idealistic intentions” it stood for, including international cooperation.¹⁰⁹ Bush’s policy was the first “openly hostile national space policy.”¹¹⁰ The United States openly admitted that it was not interested in halting the weaponization

¹⁰⁵ *Toward the Creation of a U.S. “Space Force”*, *supra* note 104.

¹⁰⁶ *See* Comm. on the Peaceful Uses of Outer Space, *supra* note 8.

¹⁰⁷ Bush National Space Policy, *supra* note 41, at 2.

¹⁰⁸ *See id.*

¹⁰⁹ Taft, *supra* note 36, at 368; Bush National Space Policy, *supra* note 41, at 2, 7 (“The United States will oppose the development of new legal regimes or other restrictions that seek to prohibit or limit U.S. access to or use of space.”).

¹¹⁰ Brian Weeden, *The Trump Administration Needs to Exercise Leadership in Space Security Diplomacy*, SPACE REV. (Aug. 20, 2018), <http://www.thespacereview.com/article/3554/1>.

of space, because it was not in the best interest of the United States and its allies.¹¹¹

The Bush national space policy sought to maintain the United States' competitive advantage in space while other countries were starting to narrow the gap. It recognized the critical importance of national space capabilities in warfare and everyday government operation.¹¹² It considered defense and intelligence activities as peaceful purposes and rejected any limitation on the United States' access to space—for both military and civilian purposes.¹¹³ Bush's policy openly admitted that the United States was developing offensive capabilities in space to stop others from impeding its military and private interests.¹¹⁴

The goal of minimizing “the creation of orbital debris by government and non-government operations” as important enough to receive its own heading.¹¹⁵ This section is unique compared to the rest of the document because it promoted international cooperation.¹¹⁶ It went so far as to say that “[t]he United States shall take a leadership role in international fora to encourage foreign nations and international organizations to adopt policies and practices aimed at debris minimization and shall cooperate in the exchange of information on debris research and the identification of improved debris mitigation practices.”¹¹⁷ It is important to note that the Bush national space policy came out when the United States still had a substantial advantage over China and Russia in space technology.¹¹⁸

B. Obama's National Space Policy

Obama's national space policy was a dramatic change from Bush's policy in language and ideal but not in practice. One of the main goals of the Obama national space policy was to “[e]xpand international cooperation on mutually beneficial space activities.”¹¹⁹ This was somewhat undercut by another stated

¹¹¹ *Id.*

¹¹² Bush National Space Policy, *supra* note 41, at 1.

¹¹³ *Id.*

¹¹⁴ *Id.* at 2.

¹¹⁵ *Id.* at 9.

¹¹⁶ *Id.*

¹¹⁷ Bush National Space Policy, *supra* note 41, at 9.

¹¹⁸ PAVEL PODVIG & HUI ZHANG, RUSSIAN AND CHINESE RESPONSES TO U.S. MILITARY PLANS IN SPACE 1, 74 (2008), <https://www.belfercenter.org/sites/default/files/files/publication/militarySpace.pdf>.

¹¹⁹ Obama National Space Policy, *supra* note 39, at 4.

goal to “[l]ead in the enhancement of security” in space.¹²⁰ The Obama administration did share its focus on the importance of protecting the space environment from the hazards of debris, which was a continuation of the Bush national space policy.¹²¹

During the Obama administration, the international community believed that the Obama policy could lead to “a new kind of peaceful accord,” but that did not prove to be the case.¹²² For all of the report’s discussions about international cooperation, the United States at this time did not participate in international solutions relating to the weaponization of space in any productive manner, outside of presenting their new strategy to other countries.¹²³ Within six months, the U.S. was abstaining from voting on international strategies to protect space.¹²⁴ This trend of abstention or voting against proposals from Russia and China continued throughout the entirety of Obama’s Presidency.¹²⁵

C. Trump’s National Space Policy

Trump’s national space policy reverts back to an openly offensive policy that is much more similar to Bush’s policy than Obama’s. If the United States continues to buck the international trend of cooperation in space, it will be in line with the Trump Administration’s inaction and lack of commitment to the international community and the shared goals represented in the U.N.¹²⁶ In Trump’s national space policy, the United States seeks to prepare itself to “meet and overcome any challenges that arise.”¹²⁷ The national space policy promoted by President Trump only mentions international cooperation when it best serves the United States’ military goals and the private interests of United States citizens.¹²⁸

¹²⁰ *Id.* at 6.

¹²¹ *Id.* at 7-8; Bush National Space Policy, *supra* note 41, at 9.

¹²² William J. Broad & Kenneth Chang, *Obama Reverses Bush’s Space Policy*, N.Y. Times (June 28, 2010), <https://www.nytimes.com/2010/06/29/science/space/29orbit.html>.

¹²³ *Proposed Prevention of an Arms Race in Space (PAROS) Treaty*, *supra* note 67.

¹²⁴ *Id.*

¹²⁵ *Id.*

¹²⁶ The Trump administration has pulled out of the Iran Nuclear Deal, the Trans-Pacific Partnership, the Paris Climate Accords, and the UN Commission on Human Rights, while also questioning the United States’ commitment to the WTO, NAFTA, G-7, and NATO. Philip Bump, *Where the U.S. has Considered Leaving or Left International Agreements Under Trump*, WASH. POST (June 29, 2018, 12:18 PM), https://www.washingtonpost.com/news/politics/wp/2018/06/29/where-the-u-s-has-considered-leaving-or-left-international-agreements-under-trump/?noredirect=on&utm_term=.97f5d0dd11da. Sharing the cost burden of defense is a point of interest for the United States under the Trump Administration. U.S. DEP’T OF DEF., *supra* note 45, at 66.

¹²⁷ *Trump National Space Policy*, *supra* note 43.

¹²⁸ *Id.*

The 2019 Missile Defense Review devotes a significant section to international cooperation, but this is to create a stronger international defensive position, not to limit proliferation in general.¹²⁹ President Trump seeks to make space safer “through strength” and with the leadership of private American citizens who share the urgency in protecting their vital interests in space.¹³⁰

The Trump Administration’s focus on “peace through strength in space” was made loud and clear with the Space Force Report and the accompanying announcement that the United States was creating a whole new branch of the military.¹³¹ It speaks openly about the threat that Russia and China pose, stating that they “are explicitly pursuing space warfighting capabilities to neutralize U.S. space capabilities during a time of conflict.”¹³² The Space Force Report is even more offensively minded than Trump’s National Space Policy because it seeks “to improve and evolve space warfighting, including integrating innovative force designs, concepts of operation, doctrines, tactics, techniques and procedures.”¹³³ This language is all blanketed under the idea that the Space Force will be used to “[p]rotect U.S. vital interests in space,”¹³⁴ but the decision to create a military branch devoted to strength in space that will have offensive capabilities “to deter, counter, and defeat threats in the space domain” is not merely for protection.¹³⁵

Access to the United States space-based capabilities is exceptionally important both offensively and defensively as “[s]pace-basing for sensors [and other capabilities] provides [a] significant [advantage].”¹³⁶ The United States is poised to invest more in its “space-based” technology as the “DoD will undertake a new and near-term examination of the concepts and technology for space-based defenses.”¹³⁷ Offensive capabilities are explicitly mentioned in a joint publication of the United States military branches as a way to maintain “[s]pace [s]uperiority.”¹³⁸

¹²⁹ U.S. DEP’T OF DEF., *supra* note 45, at 66–78.

¹³⁰ *Trump National Space Policy*, *supra* note 43.

¹³¹ Space Force Report, *supra* note 2, at 3; see *Vice President Pence Announcement on Space Force*, *supra* note 1.

¹³² Space Force Report, *supra* note 2, at 4.

¹³³ *Id.*

¹³⁴ *Id.* at 5.

¹³⁵ *Trump National Space Policy*, *supra* note 43.

¹³⁶ U.S. DEP’T OF DEF., *supra* note 45, at XIV.

¹³⁷ *Id.* at IX.

¹³⁸ JOINT FORCE DEV., *supra* note 97, at I-3–4. Space superiority is defined as “the degree of control in space of one force over any others that permits the conduct of its operations at a given time and place without prohibitive interference from terrestrial and space-based threats.” *Id.* at I-3.

VI. THE THREAT AND NECESSITY OF SPACE WEAPONIZATION

Peaceful access to space is required not only for breakthroughs by states, but also for the development of civil technology. The trend for satellite use in space has been to use satellites for both civilian and military purposes.¹³⁹ The shared use of technology is something that is cost effective for both parties and has increased over time.¹⁴⁰ The general population relies on military satellites for services such as internet connection and GPS,¹⁴¹ and it is no surprise that the United States government seeks to protect these vital interests. The Department of Defense goes on to say that protecting these interests is one of their “two broad objectives in space.”¹⁴²

Cutting edge space capabilities are a “foundational” aspect for any current military force to be effective in the modern battlefield.¹⁴³ Safe access to our defensive capabilities in space ensure that the U.S. has access to the technology required for “[n]uclear forces, [c]yberspace, [c]ommand, control, communications, computers and intelligence, surveillance, and reconnaissance . . . [m]issile defense, [j]oint lethality in contested environments, [f]orward force maneuver and posture resilience, [a]dvanced autonomous systems, and [r]esilient and agile logistics.”¹⁴⁴ Both civilian and defense industries require stability and security in space. The United States, Russia, and China—along with the private interests of civilians in those countries—seek safe passage and security in space, but neither of these countries are willing to let the other take the driver’s seat when it comes to international laws surrounding the weaponization of space.¹⁴⁵

The weaponization of space is already here according to the Joint Operations publication, released by the Joint Chiefs of Staff.¹⁴⁶ “Nations are developing, and in some cases demonstrating, disruptive and destructive counterspace capabilities.”¹⁴⁷ This publication further explains the difference between intentional and unintentional threats that occur in space, and lists the ways the United States can protect its interests through defensive operations, reconstitution, resilience, disaggregation, distribution,

¹³⁹ Taft, *supra* note 36, at 363.

¹⁴⁰ Stephens & Steer, *supra* note 40, at 18.

¹⁴¹ *Id.*

¹⁴² Space Force Report, *supra* note 2, at 5.

¹⁴³ *Id.*

¹⁴⁴ *Id.* (listing the massive amount of capabilities of the United States and also showing that the United States is exceptionally reliant on their access to these space capabilities).

¹⁴⁵ *See id.*, at 4; *see generally* PODVIG & ZHANG, *supra* note 118.

¹⁴⁶ JOINT FORCE DEV., *supra* note 97, at viii.

¹⁴⁷ *Id.* at I-6.

diversification, protection, proliferation, deception, and deterrence.¹⁴⁸ The United States currently has an advantage when it comes to the weaponization of space, but only due to a “lack of a fully developed and operationalized threat,” not because it has continually improved its own capabilities.¹⁴⁹

The United States knows that Russia and China already have advanced anti-satellite capabilities, and knows that it must continue to develop its capabilities or Russia and China will catch up within a matter of years.¹⁵⁰ The United States knows that “Russia and China are . . . developing [anti-satellite] capabilities that could threaten U.S. space-based assets,” including sensors that support U.S. missile defense.¹⁵¹

A. Russian Capabilities

In 2015 Russia combined all of its space defense capabilities “into a new military branch known as the Aerospace Defense Forces (ADF).”¹⁵² Russia has a storied history in the destruction of its own orbiting satellites starting in the 1960s.¹⁵³ In the 2000s, Russia looked to invest even more in

¹⁴⁸ *Id.* at I-6–9. These buzzwords operate mostly to outline the Department of Defense’s generic strategies. The definitions of these terms are wide enough to cover any kind of space strategy and action that could be ordered from intimidation of any competitors to more traditional use of space weaponry to assist military personnel on the ground. *Id.* Much of this information was transferred to the Space Force Report as powers that the new Space Force will have under one umbrella rather than requiring the joint command structure that is currently in place. *See generally* Space Force Report, *supra* note 2. These terms do form the doctrine of the current United States space operations. *Id.* “Doctrine is that collection of ideas and principles that tell officers and staffs how to apply the various weapons and instruments available to them.” Dean Cheng, *Assuring American Access to the Ultimate High Ground: President Trump and the New U.S. Space Force*, HERITAGE FOUND. (July 10, 2018), <https://www.heritage.org/defense/report/assuring-american-access-the-ultimate-high-ground-president-trump-and-the-new-us>.

¹⁴⁹ Statement of Mr. Douglas L. Loverro Former Deputy Assistant Secretary of Defense for Space Policy Before the House Armed Services Committee, Space Warfighting Readiness: Policies, Authorities, and Capabilities, 4 (Mar. 14, 2018).

¹⁵⁰ *Id.*; Russia and China will have their “new space-based weapons and they’ll be ready ‘in the near future,’ Lt. Gen. Robert Ashley, the head of the Defense Intelligence Agency . . .” Patrick Tucker, *Pentagon Intelligence Chief: Russia And China Will Have Weapons in Space ‘In the Near Future’*, DEF. ONE (June 27, 2018), <https://www.defenseone.com/technology/2018/06/pentagon-intelligence-chief-russia-and-china-will-have-weapons-space-near-future/149335/>. China and Russia have dramatically increased their capabilities in space to the point where they may “reach initial operational capability in the next few years.” Weeden, *supra* note 110. France has also recognized the importance of protecting its interests in space. President Macron announced the French space force soon after the United States. Nicholas Wu, *French President Emmanuel Macron Announces Creation of French Space Force*, USA TODAY (July 13, 2019, 3:15 PM), <https://www.usatoday.com/story/news/world/2019/07/13/french-space-force-macron-announces-creation-space-force-command/1723998001/>.

¹⁵¹ U.S. DEP’T OF DEF., *supra* note 45, at IV.

¹⁵² TODD HARRISON ET AL., SPACE THREAT ASSESSMENT 2018, CTR. STRATEGIC & INT’L STUD. 13 (Apr. 2018).

¹⁵³ *Id.*

space defense to keep parity with the United States.¹⁵⁴ Even after their treaty proposal in 2008, Russia has continued to test debris creating kinetic physical weapons, non-kinetic physical weapons, electronic attacks, and cyber-attacks.¹⁵⁵ The kinetic physical weapons that Russia currently has either physically hit the target satellite or detonate close enough to damage the satellite, and both forms of destruction create space debris.¹⁵⁶ Russia also has the capability to jam satellite signals and may be able to blind them with lasers.¹⁵⁷ “Russian leaders also claim that Russia possesses a new class of missile, . . . which [can] maneuver . . . in or just above the atmosphere.”¹⁵⁸ While developing these capabilities, Russia has continued to push for peaceful uses of space in the international forum.¹⁵⁹

B. Chinese Capabilities

China has already designated space a warfighting governmental organization, which signals they are developing warfighting techniques and doctrines to protect their interests in a way similar to the United States.¹⁶⁰ In response to the Bush administration’s escalation in ambition and rhetoric surrounding the United States’ interest in space, China focused on greatly improving their defensive capabilities in the early 2000s.¹⁶¹ China also reorganized its military and created the Strategic Support Force to unify their space capabilities in much the same way the United States seeks to do with the Space Force.¹⁶²

China seeks to gain equal footing with the United States by using “measures to deceive, disrupt, deny, degrade or destroy an adversary’s space capabilities.”¹⁶³ Kinetic physical attacks have been a success for China in the past, specifically in 2007, when they destroyed a satellite and created space debris that has both lingered and damaged other satellites.¹⁶⁴

¹⁵⁴ PODVIG & ZHANG, *supra* note 118, at V.

¹⁵⁵ *Id.* at 13–15.

¹⁵⁶ *Id.* at 14.

¹⁵⁷ *Id.* at 15.

¹⁵⁸ U.S. DEP’T OF DEF., *supra* note 45, at IV.

¹⁵⁹ See *Proposed Prevention of an Arms Race in Space (PAROS) Treaty*, *supra* note 67.

¹⁶⁰ HARRISON ET. AL., *supra* note 152, at 7.

¹⁶¹ PODVIG & ZHANG, *supra* note 118, at 31.

¹⁶² Michael Raska, *Strategy and Challenges, in Defense Industries in Russia and China: Players and Strategies*, 38 *ISSUE 55*, 55–56 (Dec. 2017).

¹⁶³ PODVIG & ZHANG, *supra* note 118, at 33 (citing U.S. Joint Chiefs of Staff, *Joint Doctrine for Space Operations*, Joint Publication 3-14 (Aug. 9 2002)).

¹⁶⁴ See Discussion, *supra* Section I.b., the damaging of a Russian satellite by debris from this incident.

While seeking this equal footing, it has become clear that China has additional techniques and technology that demonstrate its space-going capabilities and proficiency surpass their Russian adversaries.¹⁶⁵ Importantly, China has been successful in attacks that both create space debris and in attacks that disable a satellite but leave it in orbit without creating other space debris. China has an advantage over Russia in that it can complete an attack at a higher altitude which would destroy a satellite and ultimately create more space debris.¹⁶⁶ China also tested the use of robotic arms on satellites to grab other satellites and tested smaller satellites that match the orbit of a larger satellite and latch onto it.¹⁶⁷ This “sophisticated on-orbit” technology is tested through the constant use of “experimental” satellites,” and it is dismissed as a repair or peaceful practice when a government chooses to use the capability.¹⁶⁸ Recently, China has improved its ability to blind satellites and—in accordance with a Chinese Air Force paper on the use of lasers¹⁶⁹—has blinded satellites successfully.¹⁷⁰ China is quite advanced in their ability to jam and hack satellites, having done so successfully in the past.¹⁷¹

VII. A SMALL CHANGE TO BINDING INTERNATIONAL LAW COULD BE A FIRST STEP TO SAFELY WEAPONIZE SPACE

A. Dramatic Overhauls of Space Law will Continue to Gain No Traction

Other articles have proposed paths forward that would limit the weaponization of space. Much has been written on the failures of current international space law, and authors have come up with many different possible solutions.¹⁷² One option is to create a “strong governing body to resolve disputes” surrounding the weaponization of space.¹⁷³ A large shift like this is

¹⁶⁵ HARRISON ET AL., *supra* note 152, at 8.

¹⁶⁶ *Id.*

¹⁶⁷ *Id.* at 9.

¹⁶⁸ U.S. DEP’T OF DEF., *supra* note 45, at V.

¹⁶⁹ Joe Pappalardo, *No Treaty Will Stop Space Weapons*, POPULAR MECHS. (Jan. 25, 2018), <https://www.popularmechanics.com/space/satellites/a15884747/no-treaty-will-stop-space-weapons/>.

¹⁷⁰ HARRISON ET AL., *supra* note 152, at 9–10.

¹⁷¹ *Id.* at 10–11.

¹⁷² See generally Ryan M. Esparza, *Event Horizon: Examining Military and Weaponization Issues in Space by Utilizing the Outer Space Treaty and the Law of Armed Conflict*, 83(2) J. AIR L. & COM. 333 (2018); Koplow, *supra* note 7; Popova & Schaus, *supra* note 16; Stephens & Steer, *supra* note 40; Adam G. Quinn, Note, *The New Age of Space Law: The Outer Space Treaty and the Weaponization of Space*, 17 MINN. J. INT’L L. 475, 502 (2008); Taft, *supra* note 36.

¹⁷³ See Quinn, *supra* note 172, at 500–02 (suggesting drawing on the success of the International Telecommunications Union to further participation without describing a first step or a course of action).

unlikely to occur when the current international law has remained in effect for so long untouched, and the main players seem to be comfortable with the state of the law.¹⁷⁴

Some have found current customary international law that could possibly combine with the Outer Space Treaty to create more control over the weaponization of space.¹⁷⁵ They tend to focus on idyllic international law that is not binding because the United States is not party to many international agreements or the law is merely customary.¹⁷⁶ Stephens & Steer recommend applying the customary “International Humanitarian Law” to the expansion of weapons in space, but this would likely have no effect because customary law has not affected the United States’ policy in the past.¹⁷⁷ Esparza makes a similar argument by recommending that the Law of Armed Conflict and the Additional Protocols of the Geneva Convention should apply to space weaponization.¹⁷⁸ “[N]on-binding policies and efforts can play a substantial role and, furthermore, serve as a basis for the creation of binding rules,” but they do not have the ability to effect the obligations states have in space in the same way as binding international law.¹⁷⁹

B. Minimal Changes to Existing Space Law may have a Stronger Lasting Effect

A different path forward is to amend the Outer Space Treaty to keep up with the needs of today and limit the most harmful types of space weaponization.¹⁸⁰ For any advance in international space law to have a lasting effect, it “must have (a) ‘wide international acceptance,’ (b) ‘incentives for state and private actors to use outer space,’ and (c) ‘flexibility to adapt to changes in the international community.’”¹⁸¹ Currently, space law is in a stasis with no agreement gaining enough traction to bust through the comfortable international understanding and gain international acceptance.¹⁸² The hope is that through using small steps to forward a plan that is in everyone’s best

¹⁷⁴ Israel, *supra* note 70, at 65–67.

¹⁷⁵ See Stephens & Steer, *supra* note 40, at 30-31; Esparza, *supra* note 172, at 357.

¹⁷⁶ As an example, the United States may sign treaties like the Vienna Convention on the Law of Treaties, but not have the United States Senate give their “advice and consent” so the United States then considers the law customary and can pick and choose when they want to follow and enforce the customary international law. *Vienna Convention on the Law of Treaties*, U.S. DEPT STATE, <https://www.state.gov/s/l/treaty/faqs/70139.htm> (last visited Feb. 22, 2019).

¹⁷⁷ See Stephens & Steer, *supra* note 40, at 30-31; Discussion *supra* Section II.c.

¹⁷⁸ Esparza, *supra* note 172, at 357.

¹⁷⁹ Popova & Schaus, *supra* note 16, at 13.

¹⁸¹ Quinn, *supra* note 172, at 497.

¹⁸² See Israel, *supra* note 70, at 65–67.

interest, the existing treaty structure—that the main space powers are currently comfortable with—can fold in a new treaty amendment.¹⁸³ Situations that call for universal parity between state actors have driven powerful states to work together to find peaceful solutions.¹⁸⁴

C. Any Change to International Space Law Must Be in the Interest of the United States

For the United States to join an international agreement, the agreement must align with the United States' interest in superiority or parity.¹⁸⁵ Since the Bush administration, the United States has almost stayed entirely out of the international debate about the weaponization of space.¹⁸⁶ The necessity of being in the United States' best interest is even more important now with the Trump Administration's policy of "peace through strength."¹⁸⁷ The Outer Space Treaty does offer a possible blueprint for getting the United States to the table, and it shows that international agreements can be successful within their defined scope.

Despite the United States' rhetoric surrounding putting nuclear weapons in space,¹⁸⁸ the two main goals of that treaty have stood the test of time and have lasted over 50 years. No country currently has nuclear weapons in space, and no country has a military base on the moon. Examples of other international arms control treaties that bind the United States successfully are bans on "chemical and biological weapons," ballistic and nuclear weapon proliferation, nuclear weapons testing, and the use of "incendiary weapons, landmines, non-detectable fragment, and blinding laser weapons."¹⁸⁹ The one commonality that runs through all of these topics is the idea that all should avoid causing indiscriminate, random, and unnecessary suffering. These agreements target especially heinous warfighting techniques that have equivalent military tactics that create the same result without causing unnecessary and indiscriminate harm.

VIII. AMENDING THE OUTER SPACE TREATY TO BAN THE INTENTIONAL CREATION OF SPACE DEBRIS

¹⁸³ *Id.* at 68; Koplów, *supra* note 7, at 382.

¹⁸⁴ See Outer Space Treaty, *supra* note 5. This treaty was passed due to the alignment of views at the time for a common interest shared by all parties. See U.S. Dep't of State, *supra* note 8.

¹⁸⁵ Weeden, *supra* note 110.

¹⁸⁶ *Proposed Prevention of an Arms Race in Space (PAROS) Treaty*, *supra* note 67.

¹⁸⁷ *Trump National Space Policy*, *supra* note 43.

¹⁸⁸ See Bush National Space Policy, *supra* note 41.

¹⁸⁹ Weeden, *supra* note 110.

My proposal is an amendment to the Outer Space Treaty. An additional article XVIII would state: “Any State Party to this Treaty shall not intentionally use any weapon that creates space objects that could indiscriminately hinder the exploration and use of outer space for peaceful purposes. All forms of intentional destruction are included in this article whether the destructive device is launched from the surface of the earth or carried out via an implement already located in space. Any State that intentionally creates space debris is strictly liable for all damage caused and is presumed to be at fault under Article III of the Convention on International Liability for Damage Caused by Space Objects.”

A. Positives of a Treaty Amendment to Ban the Intentional Creation of Space Debris

This proposed amendment to the Outer Space Treaty meets the second and third requirements for effective space law that there are “incentives for Space and private actors to use outer space,” and the amendment has the “flexibility to adapt to changes in the international community.”¹⁹⁰ The limitation on the creation of space debris is in the best interests of both state and private actors because it is necessary for the continued access to space. The article is also flexible in that it is limited in scope and will allow for the continued development of other space law while limiting the development of anti-satellite weapons through what is effectively a ban on certain types of testing.¹⁹¹

The proposed amendment is also flexible in that it allows for less damaging advances that would not create space debris, such as powerful lasers and satellite hacking.¹⁹² This would enable state militaries to continue to weaponize space, but only utilizing methods that do not create space debris.¹⁹³

Breaking the cycle of inaction would be a huge step forward for international space law. It would “reinvigorate the long-moribund international dialogue on space security and arms control.”¹⁹⁴ It would match Russian and Chinese interests—at least their public interests in the international forum—in limiting the weaponization of space.¹⁹⁵ The international community has already taken steps toward stopping the

¹⁹⁰ Quinn, *supra* note 172, at 497.

¹⁹¹ Koplow, *supra* note 7, at 67.

¹⁹² *Id.* at 365.

¹⁹³ States may like this, but it is also undeniably a negative. Allowing more flexibility in space makes it more likely to be put into effect but does not entirely curb the weaponization of space. Quinn, *supra* note 172, at 497.

¹⁹⁴ Koplow, *supra* note 7, at 66.

¹⁹⁵ See *Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects (Draft)*, *supra* note 67.

weaponization of space, and this would be another incremental step forward almost undoubtedly supported by other nations.¹⁹⁶

The proposed amendment has the advantage of having a liability system already in place under the Liability Convention.¹⁹⁷ The Liability Convention has not been extensively used, but it has been successful enough to enable a less powerful country receive a settlement from a super-power when strict liability was applicable.¹⁹⁸ In addition, many countries already have the ability to track space debris and can track any weapons that are large enough to destroy a satellite.¹⁹⁹ There is also a reporting mechanism in place for reporting offenses to the U.N. under the Liability Convention.²⁰⁰

B. Negative Aspects of a Treaty Amendment

The main negatives are procedural in nature, in that it has been exceptionally hard thus far to get the major space powers, especially the United States, to agree to any change to international space law.²⁰¹ The process to amend a treaty or create a new treaty is an immense barrier to anything getting passed. Since the passage of the original space treaties, the United States has shown no major efforts to participate on the international stage.

Another major problem with the proposed amendment is that minor players will say it does not go far enough to actively remove space debris, to stop the possession of anti-satellite weapons, or to limit the testing of weapons to techniques that do not create debris.²⁰² Greater space powers could drag along minor space powers simply because they currently have little sway in the matter, and any limitation on the weaponization of space would be in their interest.

¹⁹⁶ See *id.*; Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space, *supra* note 71; Guidelines for the Long Term Sustainability of Outer Space Activities, *supra* note 81. The incremental change of simply a test ban would also be a positive step in the right direction. Koplow, *supra* note 7, at 369–72. Koplow is a proponent of an even smaller step forward in a test ban on anti-satellite weapons that would not fall under a binding international treaty. *Id.* at 363. This would be an incremental step forward in hindering the weaponization of space and would not rely on the Outer Space Treaty that is already in effect. *Id.* at 372. The proposed amendment in this note would contain all of Koplow's test ban and it does not rely on the ambiguous wording of "long-lasting," rather the proposed amendment would rely on the "intentional" creation of indiscriminate space debris. *Id.* at 364.

¹⁹⁷ Liability Convention, *supra* note 31, art. II–III.

¹⁹⁸ See Discussion *supra* Section II.b.

¹⁹⁹ See HARRISON ET AL., *supra* note 152, at 14; *Space Debris and Human Spacecraft*, *supra* note 66.

²⁰⁰ Liability Convention, *supra* note 31, art. X.

²⁰¹ See Discussion *supra* Section II.c.

²⁰² See Space Debris Mitigation Guidelines of the Committee on the Peaceful Uses of Outer Space, *supra* note 71; Koplow, *supra* note 7, at 365, 368.

IX. CONCLUSION

Attempting to create a treaty to combat debris in space could act as an important first step to limit the weaponization of space. It targets a universal goal held by Russia, China, and the United States along with private interests, which have a lot of sway regarding the goals of space security. States will more likely accept and ratify a limited treaty. This could work as an amendment to the already in place Outer Space Treaty. It would show the world that there is a commitment to continued weapons control in space. An amendment would allow Russia, China, and the United States to continue to develop other kinds of weapons that they can use to protect their respective interests in space, while limiting the major powers in small ways to keep parity between the major powers.

The formation of a United States Space Force along with the expanding threat posed by space debris creates the headlines and excitement that could get all parties to the table. We are at a point, similar to the era when the drafters wrote the Outer Space Treaty, where the United States has a clear advantage, but all countries would benefit from clear standards about allowed actions in space. Even with the aggressive stance the Trump Administration has taken, a treaty on the limitation of debris in space would further the United States' assets in space, protect private interests, and allow for the expansion of a United States Space Force.