

UNITED STATES NATIONAL SPACE POLICY, 2006 & 2010

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I. INTRODUCTION

In January of 1967, the United States, the United Kingdom, and the Union of Soviet Socialist Republics signed the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies—colloquially the Outer Space Treaty (OST).¹ This treaty entered into legal effect in October 1967, and serves as the foundation for the international law of outer space. In fact, the OST is so central to the law of outer space that it has been called the “Magna Carta” of space law.² It includes certain basic principles to which all the signatory nations agreed to abide, including freedom of exploration, space as the province of all mankind, and restrictions on military use of space.

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1. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 18 U.S.T. 2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

2. Major Robert A. Ramey, *Armed Conflict on the Final Frontier: The Law of War in Space*, 48 A.F. L. REV. 1, 74(2000). The Outer Space Treaty has also been referred to as the “constitution” of space. Ram Jakhu, *Legal Issues Relating to the Global Public Interest in Outer Space*, 32 J. SPACE L. 31, 33 (2006).

Although not part of the construct of international law, the framework of space law in the United States is largely informed by presidential space policy directives. Every U.S. president since Eisenhower has set policy objectives related to the exploration and use of space, encompassing both civilian and military goals. In August 2006, President George W. Bush issued a controversial policy directive that asserted a right for the United States to defend its national interests in space, to exclude any state the United States views as an immediate or potential threat, and implied a right to create a strong military presence. The 2006 space policy directive authorized the United States to unilaterally determine which nations should be barred from space, for what reasons, and when. In June 2010, President Barack Obama issued a new space policy directive that ameliorated many of the problems associated with the 2006 policy. Although the 2010 policy still authorizes the United States to protect its national interests in space, it is less aggressive and calls for cooperation and transparency (principles largely lost in the 2006 space policy).

This Article critically examines and compares the 2006 and 2010 U.S. national space policies within the framework of the OST, and provides certain suggestions for enhancing the international law of outer space. It is divided into five parts. Part II briefly outlines the history of the OST and the space race that it was meant to curtail. Part III explores the limitations that the OST has put on the militarization of space and builds a picture of the current militarization of space. Part IV examines the policy differences between the 2006 and 2010 presidential space directives. Part V assesses the potential threats against U.S. military and civilian space systems. Lastly, Part VI proposes amending the OST to accommodate the current technological and political environment.

II. BEGINNING OF THE SPACE RACE & THE OST

On October 4, 1957, the U.S.S.R. shocked the world by launching the world's first artificial satellite, "Sputnik 1," into orbit around the Earth, eclipsing U.S. ambition to do the same.³ The resulting hysteria in the United States propelled American desire to ramp up its own space program, and the ensuing space race pitted the United States against the U.S.S.R. in a competition for the national pride and international prestige associated with dominance in space.⁴

In 1959, the U.N. General Assembly created the instrumental

3. R. Cargill Hall, *National Space Policy and Its Interaction with the U.S. Military Space Program*, in *MILITARY SPACE AND NATIONAL POLICY: RECORD AND INTERPRETATION* 1, 3 (George Marshall Institute, 2006), available at <http://www.marshall.org/pdf/materials/419.pdf>.

4. *Id.* at 5.

Committee on the Peaceful Uses of Outer Space (COPUOS) to draft a unified body of international space law.⁵ The result was five treaties that form the bedrock of space law.⁶ By far the most important of these treaties was the OST. By 1967, when the OST was signed, the Cold War was in full bloom. Political tension was high, and the United States and the U.S.S.R. each worried that the other would outfit new satellite technology with nuclear missiles with potentially devastating effects.⁷ In addition, the United States feared that its intelligence satellites might become vulnerable to Soviet attack.⁸ During the Cold War, the United States relied heavily on intelligence gathered by reconnaissance aircraft such as the high-altitude U-2, but improving Soviet anti-air defenses put American U-2s at risk.⁹ Intelligence satellites would be beyond the reach of Soviet anti-air defenses, but the United States realized that technological progression would make even satellites vulnerable, unless they were protected by international agreement.¹⁰

The OST was designed in large part to protect United States and Soviet assets in space, to curtail the space race that began with the launching of the Sputnik satellite, and to ease the political tensions associated with man's foray into space.¹¹ In order to stave off an imminent space arms race, the OST established that space—"the province of all mankind"—was to be utilized for "peaceful purposes" and "for the benefit and in the interests of all countries."¹² It also established certain specific restrictions on potential military uses of space: nuclear weapons, and all other weapons of mass destruction were strictly prohibited in space, and military bases were prohibited on celestial bodies, as was the testing of weapons and conduct of military exercises.¹³

5. Initially formed as an *ad hoc* committee, COPUOS was formally established in 1959 by a resolution of the U.N. General Assembly. International Co-operation in the Peaceful Uses of Outer Space, G.A. Res. 1472, ¶ 14, U.N. GAOR, Supp. No. 16, U.N. Doc. A/4354 (Dec. 12, 1959).

6. In addition to the Outer Space Treaty, COPUOS drafted the 1968 Rescue Agreement, the 1972 Liability Convention, the 1975 Registration Convention, and the 1979 Moon Treaty.

7. Jacob M. Harper, Development, *Technology, Politics, and the New Space Race: The Legality and Desirability of Bush's National Space Policy under the Public and Customary International Laws of Space*, 8 CHI. J. INT'L L. 681, 682-83 (2008).

8. Hall, *supra* note 3, at 3.

9. *Id.* at 1-3.

10. *Id.* at 3.

11. See Ty S. Twibell, *Space Law: Legal Restraints on Commercialization & Development of Outer Space*, 65 UMKC L. REV. 589, 591-94 (1997).

12. Outer Space Treaty, *supra* note 1, arts. I, IV.

13. *Id.* art. IV.

III. THE OST & THE MILITARIZATION OF SPACE

Despite the restrictions on military presence in space, however, the OST, on its face, does not prohibit all military space systems.¹⁴ Article IV of the OST prohibits any weapons of mass destruction (WMD) in space: “States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.”¹⁵ Article IV of the OST prohibits the establishment of military installations, weapons testing, and military exercises on celestial bodies.¹⁶ It provides: “The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden.”¹⁷ The OST does not, however, prohibit the presence of non-WMD armaments in orbit around Earth.¹⁸ Similarly, the OST does not prohibit nations from establishing extra-planetary military bases, although the current utility of such bases is questionable.

Perhaps such installations would violate the concept of space as the “province of all mankind” to be used for “peaceful purposes.” However, given that the OST contains specific provisions pertaining to the militarization of space, it is difficult to read these vague concepts as eschewing all forms of military presence in space. Moreover, at the time the OST was signed, the United States already had military intelligence satellites in space. Indeed, protecting those satellites was a major part of the impetus for the United States signing the OST in the first place.¹⁹ Since then, many more military and dual-use satellites have been launched. Therefore, it is hard to argue that “peaceful purposes” eschews all military presence, but that does not mean that all military presence in space not specifically disallowed under Article IV is permissible. The official U.S. position has always been that peaceful means “non-aggressive,”²⁰ and as we shall see, this concept has been stretched, perhaps beyond recognition, in recent U.S. space policy.

14. Major John W. Bellflower, *The Influence of Law on Command of Space*, 65 A.F. L. REV. 107, 127-28 (2010) (arguing that Article IV of the Outer Space Treaty only prohibits certain *means* of military force in space).

15. Outer Space Treaty, *supra* note 1, art. IV.

16. *Id.*

17. *Id.*

18. Bellflower, *supra* note 14, at 127.

19. See *supra* notes 8-10 and accompanying text.

20. Jackson Nyamuya Maogoto & Steven Freeland, *The 21st Century Space Arms Race: Curtailing Heavenly Thunderbolts Through the Shield of the ‘Peaceful Purposes’ Mantra*, 10 (Feb. 26, 2010) (working paper), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1559840.

Whatever the meaning of “peaceful purposes” in the OST, the militarization of space has taken off in recent years. The Gulf War was labeled the first “space war” because of the strategic use of tactical intelligence, meteorological and geodetic data, and communications via satellite.²¹ Until recently, perhaps due to the high cost factor, few nations other than the United States and Russia have invested heavily in their own military space programs. Now other nations appear concerned about the potential for being dominated in space. In 2007, China successfully tested an anti-satellite weapon (ASAT) that it had been developing, shooting down an old weather satellite in orbit around Earth.²² Seemingly in response to the Chinese launch of a satellite into space, India has begun looking at military options in space.²³ In 2008, Japan authorized military use of space as part of an ambitious space program, breaking a decades old ban on the use of the nation’s space assets for military purposes.²⁴ In addition, Germany has recently commissioned its first spy satellites.²⁵

Still, there are currently no known offensive space weapons. Despite the aggressive stance of the United States in recent years, U.S. military space policy has always been focused on intelligence gathering, navigation, communications, and missile early warning (perhaps due to the cost, both economic and political, of putting weapons in space). However, while it may be costly to actually install weapons on satellites (rather than just using space-based support in conjunction with terrestrial weapons systems), there are strategic considerations that might justify the expense. Former U.S. Secretary of Defense Donald Rumsfeld has dubbed space the “ultimate high ground,” in reference to the military maxim that he who controls the high ground controls the battlefield.²⁶ As technology advances, the economic (though not political) cost of such installations will go down, making the offensive weaponization of space a real possibility in the near future, and one that should be dealt with now.

The United States has resisted measures intended to prevent an arms race in space. The U.N. General Assembly has passed numerous resolutions for the Prevention of an Arms Race in Outer Space, to which the United States has traditionally abstained and recently voted

21. Hall, *supra* note 3, at 16.

22. Maogoto & Freeland, *supra* note 20, at 2.

23. David A. Koplow, *ASAT-atisfaction: Customary International Law and the Regulation of Anti-Satellite Weapons*, 30 MICH. J. INT’L L. 1187, 1193 (2009).

24. *Id.*

25. *Id.*

26. U.S. Sec’y of Def. Donald H. Rumsfeld, Testimony prepared for the S. Armed Services Comm. hearing on 2003 Def. Budget Request (Feb. 5, 2002), at 24, *available at* http://www.globalsecurity.org/military/library/congress/2002_hr/Rumsfeld.pdf.

against.²⁷ As we will see in Part IV *infra*, the U.S. decision to oppose the arms race resolutions was in keeping with U.S. policy measures that strongly disfavored any impediment to U.S. ambitions in space (military or otherwise). But new U.S. policy has perhaps set the tone for new discussions.

IV. U.S. NATIONAL SPACE POLICY, 2006 & 2010

A. National Space Policy 2006

In August 2006, President Bush issued his presidential directive on National Space Policy (NSP06).²⁸ In particularly dramatic language, NSP06 authorized the United States to actively defend its interests in space, and to deny access to space to adverse nations that the United States determined were using space in a way hostile to U.S. national interests.²⁹ Unsurprisingly, NSP06 was met with intense criticism and caused an international uproar.³⁰ In fact, China's subsequent decision to test an anti-satellite missile in January 2007 is often considered a response to the aggressive U.S. stance expressed by NSP06.³¹ Russia, the other primary rival to U.S. space power, along with China, has also criticized the United States for the aggressive unilateral approach espoused by NSP06.³²

To some extent, NSP06 merely authorized the protection of rights granted by the OST, in order to support the growing national interests of the United States in space.³³ For instance, NSP06 states that the United States will “preserve its rights, capabilities, and freedom of action in space; dissuade or deter others from either impeding those rights or developing capabilities intended to do so; take those actions necessary

27. See G.A. Res. 60/54, U.N. Doc. A/RES/60/54 (Dec. 8, 2005) (passed 180-2-0 with the U.S. and Israel voting against); G.A. Res. 61/58, U.N. Doc. A/RES/61/58 (Dec. 6, 2006) (passed 178-1-1 with the U.S. as the sole vote against, and Israel abstaining); G.A. Res. 62/20, U.N. Doc. A/RES/62/20 (Dec. 5, 2007) (passed 178-1-1 with the United States as the sole vote against, and Israel abstaining).

28. U.S. National Space Policy, Aug. 31, 2006 [hereinafter NSP06], available at <http://www.whitehouse.gov/sites/default/files/microsites/ostp/national-space-policy-2006.pdf>.

29. *Id.* at 1-2.

30. Cynthia B. Zhang, *Do As I Say, Not As I do—Is Star Wars Inevitable? Exploring the Future of International Space Regime in the Context of the 2006 U.S. National Space Policy*, 34 RUTGERS COMPUTER & TECH. L.J. 422, 423 (2008) (arguing that the United States has taken a unilateralist approach to the politics of outer space).

31. Harper, *supra* note 7, at 682.

32. *Id.* at 681-82.

33. NSP06 provides: “The United States considers space capabilities—including the ground and space segments and supporting links—vital to its national interests.” NSP06, *supra* note 28, at 1.

to protect its space capabilities; [and] respond to interference.”³⁴ Freedom of action in space for all nations is one of the most central tenets of the OST. Recall, Article I of the OST espouses the view of space as the “province of all mankind” and provides that all states should have free access to space without discrimination.³⁵ NSP06 also states that “[t]he United States rejects any claims to sovereignty by any nation over outer space or celestial bodies, or any portion thereof, and rejects any limitations on the fundamental right of the United States to operate in and acquire data from space.”³⁶ However, one must remember that the OST already provides that space “is not subject to national appropriation by claim of sovereignty.”³⁷ NSP06 thus largely asserts the power of the United States to protect rights already granted by international treaty. Nevertheless, there is legitimate concern over how the United States will protect these rights. Indeed, NSP06 appears to focus on the potential for using military force to protect U.S. national interests in space, which is possibly a violation of the OST.

It is in no way surprising that an international space power, with a growing interest and dependency on space, would want to protect those interests. The OST, and the other international space treaties, do little to ensure compliance—the OST only provides for “a consultation” if a nation’s interests are being interfered with.³⁸ In full, the consultation provision of the OST provides:

A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, may request consultation concerning the activity or experiment.³⁹

The details of what a consultation constitutes are not fleshed out in the OST, but it is clear that a mere consultation—without specific punitive consequences—may be insufficient to remedy any actual interference, or deter potential interference, with a nation’s right to use and explore space. The United States is thus naturally and legitimately concerned with protecting its interests in outer space.

The most controversial language in NSP06, however, potentially

34. *Id.* at 1-2.

35. Outer Space Treaty, *supra* note 1, art. I.

36. NSP06, *supra* note 28, at 1.

37. Outer Space Treaty, *supra* note 1, art. II.

38. *Id.* art. IX.

39. *Id.*

goes far beyond protecting interests established under international law. In particular, NSP06 authorizes the United States to “deny, if necessary, adversaries the use of space capabilities hostile to U.S. national interests.”⁴⁰ Enforcement of this directive necessarily involves military power. The exclusion of a disfavored nation-state will implicitly require the use of military force. Because the United States reserved the right to determine who was an adversary, and what constitutes hostile use, this directive comes into direct conflict with the OST principle that no nation can exclude any other nation from space (the very same notion that NSP06 appeals to when it states that the United States will preserve its own freedom of action in space). Recall Article I of the OST provides that space “shall be free for exploration and use by all States *without discrimination of any kind*, on a basis of *equality* and in accordance with international law.”⁴¹ The unilateral exclusion of a nation from space is an invidious form of discrimination, and is prohibited by the OST. Even if we were to construe the concept of hostile adversaries in NSP06 narrowly, the OST language explicitly prohibits *any* kind of discrimination. Moreover, if the United States were to act as the arbiter of who may be denied access to space, this would violate the principle of equality, and would be a violation of international law. The OST may allow a nation to be excluded from space under certain circumstances, but if a unilateral decision by one signatory nation is sufficient, then the freedom of action principle has no meaning. And the fact that it was the United States asserting this right, and not some other nation, hardly changes the analysis. Although NSP06 only asserted *U.S. authority* to exclude others from space, others may claim this right by implication, potentially putting even U.S. satellites at risk.

Furthermore, NSP06 stated that the United States would oppose arms control restrictions that “impair the rights of the United States to conduct research, development, testing, and operations or other activities in space for U.S. *national interests*.”⁴² While “national interests” certainly encompasses defense, it arguably includes offense as well. Indeed, offensive space systems may be required to implement the policy directive to deny adversaries’ use of space capabilities hostile to U.S. national interests.

B. *National Space Policy 2010*

On June 28, 2010, President Barack Obama issued a new

40. NSP06, *supra* note 28, at 2.

41. Outer Space Treaty, *supra* note 1, art. I (emphasis added).

42. NSP06, *supra* note 28, at 2 (emphasis added).

presidential directive on National Space Policy (NSP10).⁴³ While the content of provisions in NSP10 relating to the authority of the United States to defend its interests in space remain mostly the same as in NSP06, the tone of the directive is much more cooperative. NSP10 states, for instance, that the United States may, “consistent with the inherent right of self-defense, deter others from interference and attack, defend our space systems and contribute to the defense of allied space systems, and, if deterrence fails, defeat efforts to attack them.”⁴⁴ By explicitly utilizing the language of self-defense, and by framing the issue in terms of the defense of both U.S. and allied space systems, the forceful and nationalistic tone of NSP06 is replaced by a more moderate NSP10. Moreover, NSP10 adds a new guiding principle of transparency, and suggests that the United States may limit its militarization of space to defense and deterrence.⁴⁵

NSP10 provides:

It is the shared interest of all nations to act responsibly in space to help prevent mishaps, misperceptions, and mistrust. . . . Space operations should be conducted in ways that emphasize openness and transparency to improve public awareness of the activities of government, and enable others to share in the benefits provided by the use of space.⁴⁶

This idea—that openness and transparency are essential to prevent mistrust—is nothing new, but it stands in stark contrast with NSP06, which seems to have sown the seeds of mistrust. In fact, NSP10 reads almost like a response to NSP06, saying to the world, “you can still trust the [United States].”

Although NSP10 does provide that nations have the right to explore and use space for national and homeland security activities,⁴⁷ it speaks solely to defense and deterrence. There is no suggestion that the United States may unilaterally deny any other nation access to space. In addition, there is no suggestion that the United States would oppose the development of new legal regimes that limit U.S. militarization of space. Perhaps the removal of this language suggests that the United States may now be amenable to an amendment to the OST that imposes

43. National Space Policy of the United States, June 28, 2010 [hereinafter NSP10], available at http://www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf.

44. *Id.* at 3.

45. *Id.*

46. *Id.*

47. *Id.* “All nations have the right to explore and use space for peaceful purposes, and for the benefit of all humanity, in accordance with international law. Consistent with this principle, ‘peaceful purposes’ allows for space to be used for national and homeland security activities.” *Id.* The “peaceful purposes” language is a reference to the Outer Space Treaty

a stricter regime of arms control in space. The possibility of such an amendment is discussed in *infra* Part V.

While NSP10 is not a complete reversal from NSP06, it is a very important step in the right direction. NSP06 largely ignored the fundamental importance of cooperation and trust embedded in the OST. Recall that the OST was signed with the purpose of avoiding a Cold War-era mentality in space. NSP06 pushed U.S. space policy back towards the Cold War-era mentality of mistrust, and while the purpose of NSP06 was to increase U.S. national security, it may have had the opposite effect.⁴⁸

With advances in technology, space is becoming increasingly important. However, while the United States must endeavor to protect its investment in space, the concerns that prompted the OST in the first place should not be forgotten. The new technological and political climate necessitates more than the platitudes contained in the OST.⁴⁹

V. THREATS IN SPACE, BUT NO IMMEDIATE AGGRESSION

In peace, space systems are a key element of deterrence. In war, space systems enhance combat effectiveness, reduce casualties and minimize equipment loss. Space systems have thus become integral to U.S. national security. However, trends including technology proliferation, accessibility to space, and foreign knowledge about U.S. space systems have made U.S. space systems increasingly vulnerable.⁵⁰ Indeed, given the U.S. terrestrial military power, and the U.S. military's reliance on space systems, an attack against those systems may be an attractive option to the nation's enemies.⁵¹ In July 2000, for example, the Xinhua news agency reported that the Chinese military was developing methods and strategies for defeating the U.S. military in a high-tech and space-based future war.⁵² It noted: "For countries that could never win a war by using the method of tanks and planes, attacking the U.S. space system may be an irresistible and most tempting choice."⁵³ Therefore, the United States has a significant interest in protecting itself in a measured way against a surprise attack

48. See Harper, *supra* note 7, at 698-99.

49. *Id.* at 686.

50. Tom Wilson, *Threats to United States Space Capabilities, Prepared for the Commission to Assess United States National Security Space Management and Organization*, 5 (2001), available at <http://www.globalsecurity.org/space/library/report/2001/nssmo/article05.pdf>.

51. *Id.*

52. *Id.* (citing Al Santoli, *Beijing Describes How to Defeat U.S. in High-Tech War*, 331 CHINA REFORM MONITOR 10 (Sept. 12, 2000)).

53. *Id.*

against its space systems in what has been famously labeled a “Space Pearl Harbor.”⁵⁴

There are now an increasing variety of methods for impeding or destroying space systems, and technology that may be used to attack space systems is spreading across the globe.⁵⁵ Kinetic energy ASATs, such as the one used to destroy the defunct Chinese weather satellite, are perhaps the most likely to be deployed. These weapons destroy satellites either by the physical force of a direct impact, or by passing near to the satellite and detonating an exploding fragmentation device.⁵⁶ Directed energy ASATs that utilize either laser or particle beams are also being developed, though there are certain technical difficulties that must be overcome before their use will be practical.⁵⁷ A particularly interesting directed energy ASAT being developed involves redesigning a shoulder-mounted gun to fire an anti-satellite laser beam from a basic rifle.⁵⁸ Nuclear warheads may also be used to destroy many satellites at once in the original blast and ensuing magnetic pulse, or to drastically reduce their life from many years to months or weeks, due to the radiation penetrating the satellite.⁵⁹ Nevertheless, except for China’s takedown of one of its own defunct weather satellites by an unarmed missile, to date there have been no reported attacks against any nation’s space infrastructure.

Space systems are divided into three segments: the space segment consists of the satellites themselves; the ground segment controls the system; and electromagnetic links connect the space and ground segments.⁶⁰ To the extent that space systems are at risk, the ground segment, and the electromagnetic links are far more vulnerable than the space segment.⁶¹ In fact, the threat of attack against the space segment

54. See COMM’N TO ASSESS U.S. NAT’L SEC. SPACE MGMT. & ORG., REP. OF THE COMM’N TO ASSESS U.S. NAT’L SEC. MGMT. & ORG. (2001) (coining the phrase “Space Pearl Harbor” in reference to potential U.S. vulnerability to a surprise attack against space assets), available at <http://www.dod.mil/pubs/space20010111.pdf>.

55. Wilson, *supra* note 50, at 5.

56. William Spacy, *Assessing the Military Utility of Space-Based Weapons*, in SPACE WEAPONS: ARE THEY NEEDED? 157, 173 (John Logsdon & Gordon Adams eds., 2003), available at http://www.gwu.edu/~spi/assets/docs/Security_Space_Volume.Final.pdf.

57. *Id.* at 181-82.

58. Laser Diode Assembly For Use In A Small Arms Transmitter (filed Nov. 8, 1999), available at <http://www.wipo.int/pctdb/en/wo.jsp?WO=1999042783> (patent application for “[a] laser diode assembly for use in a small arms laser transmitter (ASAT) which may be affixed to the stock of a rifle such as an M16 used by a soldier in training with a multiple integrated laser engagement system (MILES).”).

59. Phillip J. Baines, *Prospects for “Non-Offensive” Defenses in Space*, Center for Nonproliferation Studies Occasional Paper No. 12, at 35-36.

60. *Id.* at 31.

61. *Id.* at 33.

of space systems is relatively low.⁶² Nevertheless, as evidenced by the development of ASATs by many countries, including China, the space segment cannot be completely ignored from a defense perspective. Indeed, as technology improves, satellites will become more vulnerable to direct attack.

There are many “non-offensive” strategies that can make satellites less vulnerable, and some of these strategies are already being employed today.⁶³ These strategies include denial and deception techniques, which are techniques that make it harder for enemies to track satellites;⁶⁴ hardening and shielding techniques that make satellites better able to weather an attack;⁶⁵ maneuvering techniques that allow satellites to avoid attack;⁶⁶ and finally redundancy, dispersion, and deployment techniques, which involve the building of space systems that can function even where part of the system is damaged.⁶⁷ Use of these strategies can reduce the need for weaponizing space, though they may be insufficient to fully protect space systems as ASATs become more advanced.

VI. SUGGESTION: AMEND THE OST

Because succeeding presidents can easily amend executive policy, and because their directives are not binding on other nations, the OST should be amended to incorporate many of the principles exemplified by NSP10. This would create a new, stronger regime of space law capable of handling the new technological and political climate of the twenty-first century. Capitalizing on the current willingness of the U.S. government to at least consider changes that impact the militarization of space now will constrain future leaders who wish to enact policy that may stimulate a dangerous space race.

Under Article XV of the OST, any signatory nation may propose an amendment to the OST,⁶⁸ and a proposed amendment will be passed on acceptance by a majority of the member nations.⁶⁹ However, such amendments are binding only on nations who vote in favor of the amendment, or who accept the amendment after it has been passed.⁷⁰ It is important, therefore, that proposed amendments actually be accepted

62. *Id.* at 33-34.

63. *Id.* at 39-45.

64. *Id.* at 39-40.

65. *Id.* at 40-41.

66. *Id.* at 41-42.

67. *Id.* at 42-45.

68. Outer Space Treaty, *supra* note 1, art. XV.

69. *Id.*

70. *Id.*

by the major players (in particular the United States, Russia, and China). Any amendment not accepted by these space powers will have little effect. Nevertheless, the current political climate may be ready for the OST to be amended, and the time is thus ripe to consider such matters. What follows is a series of suggestions for how the OST can be amended to protect the peace of outer space.

First, in order to protect national interests in space and avoid a relapse into a Cold War-style arms race in space, the OST should be amended to include a principle of transparency as espoused by NSP10, and to provide specific implementations of this principle. Although the OST promotes cooperation in the exploration and use of space, it provides no mechanism for countering mistrust. As space becomes more important, the seeds of mistrust are likely to grow (as they have been). Enforcing a more rigorous principle of transparency will help counter this mistrust. The OST actually already provides for a modicum of transparency.⁷¹ Article XII provides that “[a]ll stations, installations, equipment and space vehicles on the moon and other celestial bodies shall be open to representatives of other States Parties to the Treaty on a basis of reciprocity.”⁷² Nevertheless, such vague hopes that nations will keep their space systems open to others is unlikely to be effective, especially given the increasing economic and strategic importance of space. Moreover, unlike the prohibition on military installations in Article IV, Article XII does not apply to satellites. A much more precise and rigorous set of procedures (and one that incorporates space objects other than celestial bodies) should be put in place to ensure transparency. The exact contours of such procedures are a matter for serious debate; the need for these procedures is not.

Second, the OST should be amended to explicitly allow the use of only *defensive* military structures in space. As space becomes more and more important, nations may find defensive military structures necessary to protect satellites against enemy ASATs. Stockpiling of offensive weaponry in space, however, is unnecessary, and may ultimately lead to a Cold War-style arms race. Although offensive capabilities may protect a nation’s investment in space because of the deterrent effect, the cost of such deterrence is too high. Allowing defensive military systems will give nations the ability to protect their investment and interests in space, without spurring a dangerous arms build-up in space. From a political point of view, clarifying that defensive systems will be permitted in space may induce nations with significant interest in installing such systems to agree to an amendment that would also prohibit them from installing offensive weapons.

71. Jakhu, *supra* note 2, at 54.

72. Outer Space Treaty, *supra* note 1, art. XII.

In order for this amendment to be effective, the distinction between offensive and defensive weapons must be made clear. As discussed earlier with regard to the “peaceful purposes” mantra, ambiguity begets confusion and abuse. Naturally, intent should play some sort of role here—a weapon in space intended to be used to attack enemy assets will be an offensive weapon under any definition. Still, intent is often hard to determine, and it would be absurd to allow nations to develop potentially dangerous space weapons, merely on their word that they do not intend to use such weapons offensively. Even if spacefaring nations were to develop weapons with no intent to use them offensively, the temptation to do so may arise after they are already in place. Therefore, some sort of technical limitations are necessary for this amendment to have the desired effect. These limitations should allow these weapons to take out enemy ASATs without the range or destructive power to be effective against a terrestrial target. A consequence of allowing such defensive weapons is that they could potentially be used as ASATs themselves, but this concern can be taken care of by the ASAT ban discussed later in this section.⁷³

Third, the amendment should explicitly require a U.N. vote prior to the exclusion of a nation from space. Although the OST arguably prohibits unilateral action in excluding a nation from space—recall, the freedom of action principle of Article I provides that all nations have the right to explore and use space—this prohibition is far too ambiguous. NSP06 capitalized on this ambiguity and authorized the United States to unilaterally exclude adversaries from space. Requiring a U.N. vote would stop any nation from dominating space by controlling who has access. Of course, there may be times when waiting for a U.N. vote would be impractical. In times of war, for instance, timely control of an adversary’s access to space may be necessary. The amendment may therefore allow nations to unilaterally exclude others from space *only* in the event of an actual attack, or where an attack is imminent.

Finally, the amendment would prohibit the use and development of ASATs. The freedom of space principle has been weakened by NSP06. An amendment to the OST banning the development and use of ASATs would restore and enhance the principle of freedom of space and would serve to protect satellites in space without resort to military means. It would also ameliorate the very real risk that space surrounding the Earth’s atmosphere will become littered with debris that may interfere with the operation of satellites orbiting Earth.⁷⁴ Of all of the proposed

73. The proposed amendment prohibits both the use and development of ASATs. *See infra* Part VI. The “use” language would apply not just to devices designed to act primarily as anti-satellite weapons but also to defensive weapons that may have such capabilities.

74. For a discussion on the space debris problem, see Jakhu, *supra* note 2, at 95-97. *See*

amendments, this one may also have the most support from the U.S. government, as President Obama has expressed a desire for an ASAT ban.⁷⁵ It may also be the hardest to achieve, as there are many ways to destroy or disable a satellite. Still, with a firm ASAT ban in place, the international political cost of using such a device may well stop nations from deploying ASATs. Moreover, nations with substantial space assets (such as the United States) will be able to rest a little easier knowing that international law protects those assets, and will therefore be less likely to take matters into their own hands.

VII. CONCLUSION

While the United States has reason to prepare for an attack on its space assets in the future, there is little evidence of real risk of such an attack today. Space is vast enough to allow for both international, peaceful cooperation, and lucrative commercial activities. The proposed amendments to the OST will best focus the United States, and the other signatory nations, on this goal. There should be greater accountability, and more international cooperation, among the signatory nations. The future of humankind may depend, in some measure, on a peaceful resolution of these issues. The non-military core of the OST should be reaffirmed, and should specifically ban all offensive weapons, in addition to nuclear and other weapons of mass destruction, while allowing defensive military use of space. The use and development of ASATs should be categorically prohibited. A U.N. vote should be required before any nation is excluded from space during peacetime. Perhaps most importantly, transparency should become front and center to international efforts to avoid an arms race in space. It is safer and more logical to take the path to peace. If left unchecked, unilateralist policies exemplified by NSP06 (and renounced by NSP10) will threaten the peace that the OST helped create. It is not too late, and the time to seize the moment is now.

also Lucinda R. Roberts, *Orbital Debris: Another Pollution Problem for the International Legal Community*, 11 FLA. J. INT'L L. 613 (1997).

75. See THERESA HITCHENS, *SAVING SPACE: THREAT PROLIFERATION AND MITIGATION* 16 (2009). Note, however, that the language suggesting that the President favored such a ban has been removed from the White House website and replaced with a vague pronouncement. *Id.*

