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Redefining Military Activities In Space
A Viable Compromise Over The Military Uses Of Space

By

Tamaira Rivera

B.S., June 1992, Florida State University
J.D., May 1995 California Western School of Law

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Sean David Murphy
Associate Professor of Law

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REDEFINING MILITARY ACTIVITIES IN SPACE

A VIABLE COMPROMISE OVER THE MILITARY USES OF SPACE

I. INTRODUCTION

From the beginning of time, man has looked to the skies in the belief that he would find a source of guidance, strength and wisdom there. In modern times, man still looks to the skies in search of these attributes. The difference between the ancient and modern searches, however, lies not in the instruments with which the skies are viewed but in modern men's desire to reign over the skies in order to obtain strength, guidance and wisdom.

Today's technology provides communications, navigation, surveillance, meteorological information and arms control verification monitoring to its users from outer space.[1] This technology and the information it conveys are highly prized by both military and civilian organizations around the world. Its value is such that the global community has sought to protect them by entering into treaties to control the activities that may be carried out in space. [2]

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[1] Major Douglas S. Anderson, *A Military Look Into Space: The Ultimate High Ground*, 1995 ARMY LAW. 19, 22 (1995).

[2] *See generally*, Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, U.N. GAOR, 21st Sess., Supp. No. 16, at U.N. Doc A/6316 (1967), Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, U.N. Doc A/34/664.

These treaties, however, have created consternation despite their attempt to control potentially dangerous space activities. Many argue that because its terms were never defined they allow much more than intended. The activities that cause the greatest outcry are those of a military nature. The language of the treaties is so broad that it fosters a situation where there is currently no consensus in the world community as to how much of a military presence is permissible in space.

The goal of this thesis is to demonstrate that, in light of contemplated military uses of space, the Outer Space Treaty needs revision in order to strengthen its authority. As it stands, the current legal regime of space has legal loopholes that allow for future military uses that are problematic under the current space treaties. Key provisions of the space treaties, must be refined and crafted so as to close the loopholes and ensure compliance with its express terms. Any such revisions must account for the national security needs of individual countries and the world community's interest in peace and stability to be effective. Without such refinements, future space machinery and uses will ultimately run counter to the wording and intent of relevant space documents.

Part II of this paper introduces the legal framework for activities in space. Reviewing the constitutive treaties, resolutions and implementing statutes exposes the origins of differing interpretations and the major points of contention in the administration of space. It also reveals the inadequacies of the current space regime.

Part III discusses the legality of current military activities and technology in outer space. It also introduces proposed military space missions and systems and evaluates their legal and political viability. Part IV argues that the proposals, if implemented, will run contrary to the space treaties.

Finally, Part V offers a means by which to strengthen the treaty in order to ensure compliance with its objective. It offers refinements to current treaty language that effectuates the intent of the agreement. Finally, it explains how the modifications meet legal and political concerns.

II. LEGAL BACKGROUND

The legal framework for determining the validity of activities in space is contained within several bilateral and multilateral treaties. The most pertinent treaties and other important instruments are discussed below.

A. Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water[3]

This instrument is a bilateral treaty between the Union of Soviet Socialist Republics (USSR) and the United States of America (USA). It is important because it is the first treaty to attempt to limit a particular activity in outer space. The goals of the treaty were to achieve complete disarmament, eliminate an arms race, and discontinue the production and testing of nuclear weapons in the atmosphere, outer space and under water.[4]

Although it succeeded in prohibiting nuclear detonations in space, it was primarily concerned with the disarmament of space in order to prevent radioactive contamination of the environment.[5] It did not occupy the field in terms of prohibited objects or activities in space.

B. Outer Space Treaty

The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including

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[3] Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space, and Under Water, Aug. 5, 1963, 13 U.S.T. 1313, T.I.A.S. No. 5433, 480 U.N.T.S. 43.

[4] *Id.*

[5] Major Robert A. Ramey, *Armed Conflict on the Final Frontier: The Law of War in Space*, 48 A.F. L. REV 1, 100 (2000).

the Moon and Other Celestial Bodies[6] (OST), however, was the first multilateral treaty to establish a general framework from which space activities were to be conducted. It provided the initial criteria by which to measure the permissibility of activities and uses of space. In its preamble, the OST set forth the context and rationale for its development. Amongst other things, it declared that the use and exploration of space should be carried out for peaceful purposes and for the benefit of all peoples, and in the spirit of cooperation and mutual understanding.[7]

Notwithstanding this language of peace and cooperation, Article IV only prohibits a limited number of activities in outer space. It strictly forbids: placing objects carrying nuclear weapons or weapons of mass destruction (WMD) in earth's orbit, installing either of these types of weapons on celestial bodies or other installations, establishing military bases, installations and fortifications on celestial bodies, testing any type of weapons on celestial bodies and conducting military maneuvers on celestial bodies. It is silent as to conventional weaponry and other military assets in space.[8]

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[6] Outer Space Treaty, U.N. GAOR, 21st Sess., Supp. No. 16, U.N. Doc A/6316 (1967). [hereinafter OST].

[7] *Id.* at Preamble.

[8] Ramey *supra* note 5, at 83.

There is an ostensible lack of congruence between the preamble's reservation of space for "peaceful purposes" and the text's failure to restrict potentially non-peaceful uses of outer space. This has led to much debate over the extent of permissible military participation in space. On one hand, scholars have argued that the "peaceful purposes" language means that space should be reserved exclusively for nonmilitary uses.

This interpretation was promoted by the USSR, who considered the treaty as a means to restrict military use of outer space.[9] Under this construction, no activities that involve or would benefit the military should be carried out in space.[10] Article I of the OST is viewed as bolstering the position of those who oppose military activities in space.

This article proclaims that space activities are to be carried out for the benefit and in the interest of all nations. Consequently, because military activities cannot be for the benefit of *all* countries, the OST does not authorize their applications.[11]

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[9] YEARBOOK OF THE UNITED NATIONS 1966 39 (1968).

[10] P.K. MENON, THE UNITED NATIONS' EFFORTS TO OUTLAW THE ARMS RACE IN OUTER SPACE, 33 (Studies in World Peace; v.1, 1988).

[11] Anderson, *supra* note 1, at 26.

Opponents of this interpretation, however, argue that "peaceful purposes" refers to the non-aggressive use of space. Military activities are viewed as permissible so long as they are not of an aggressive character.[12] In support of this assertion they point to three factors.

First, the OST is silent as to the lawfulness of all military weapons except nuclear weapons and WMD. This silence implies that conventional weapons and support systems are not prohibited and are, therefore, perfectly acceptable.[13] Accordingly, the framers intentionally defined the prohibitions narrowly so as to allow for certain military uses, but not others.[14]

Furthermore, they argue that despite the USSR's official position on the use of outer space for non-military purposes[15], the two specially affected countries - the USA and the USSR - had no intent to limit military applications beyond what was enumerated in the text. Both the Soviet Union and the United States of America had

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[12] Outer Space Treaty, *supra* note 7.

[13] PETER JANKOWITSCH, *Legal Aspects of Military Space Activities, in* SPACE LAW DEVELOPMENT AND SCOPE 143, 147 (Nandasiri Jasentuliyana, ed., 1992).

[14] *See id.*

[15] *Summary Record of the 57th Meeting,* UN GA Committee on the Peaceful Uses of Outer Space, legal Subcommittee, 5th Session at UN Doc. A/AC.105/C.2/SR57 at 11 (1966) (The representative from the USSR stated that the military use of the moon and other celestial bodies could not be justified by claims of national security interests because they were to be considered preparations for global war).

already begun to develop a variety of military surveillance, navigation and communications space instruments by the time the OST came into existence.[16]

Moreover, Article III of the OST allows for activities in accordance with international law, including the UN Charter. Supporters of the broad interpretation of the OST argue that because Article 51 of the UN Charter acknowledges the inherent right of self-defense against aggression, defensive weapons are not prohibited.[17] So long as weapons are not placed in space with the intent that they be used for first strike or aggressive purposes, the nation is in compliance with the OST.

Exacerbating the debate is the USA's ambiguity about the intended limitations of the treaty. The United States did not seek to adopt the language proposed by the USSR on the limitations of space weapons.[18] Nonetheless, the US representative to the UN proclaimed that the purpose of the

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[16] IVAN A. VLASIC, *The Legal Aspects of Peaceful And Non-Peaceful Uses of Outer Space, in* PEACEFUL AND NON-PEACEFUL USES OF OUTER SPACE, 37, 42 (Bhupendra Jasani ed., 1991).

[17] S. CHANDRASHEKAR, *Problems of Definition: A View of an Emerging Space Power, in* PEACEFUL AND NON-PEACEFUL USES OF OUTER SPACE, 77, 82 (Bhupendra Jasani ed., 1991).

[18] *Summary Record of the 57th Meeting,* UN GA Committee on the Peaceful Uses of Outer Space, legal Subcommittee, 5th Session at UN Doc. A/AC.105/C.2/SR57 at 11 (1966) (The USSR proposed language which prohibited the use of any weapons in outer space).

OST was to ensure that outer space would remain free of the conflict and strife that mars the earth.[19]

Furthermore, although the US expressed concerns about the treaty's effect upon national security, it was not preoccupied with the extent of disarmament required. Rather, the US was uneasy over three things: a) the limitations the treaty placed upon its ability to share space technology with whom it pleased,[20] b) the imposition of liability over nonphysical damage to space instruments and c) the need to monitor space for the introduction of clandestine weapons.[21] This last concern implies that the US understood that no weapons should be launched into space.

Bolstering this position is President Lyndon B. Johnson's Letter of Transmittal of the OST to the Senate. In it, President Johnson proclaims, "the realms of space should forever remain realms of peace".[22] He also stated that the treaty endeavored to "enlarge the perimeters of

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[19] ARTHUR J. GOLDBERG, STATEMENT TO THE UNITED NATIONS, IN COMMITTEE I, ON THE OUTER SPACE TREATY, (1966) *reprinted in* S. EXEC. DOC D, 90-1 at 9 (1967).

[20] STAFF OF SENATE COMMITTEE ON FOREIGN RELATIONS, 90TH CONG., REPORT ON THE TREATY ON OUTER SPACE 4 (Comm. Print 1967) (Because the OST's inspection privileges did not extend to objects in orbit, Defense Secretary McNamara and General Earle G. Wheller, Chairman of the Joint Chiefs of Staff were concerned that weapons could be secretly orbited and the US not would have means of inspecting or detecting the object).

[21] *Id.*

[22] LYNDON B. JOHNSON, LETTER OF TRANSMITTAL, *reprinted in* S. EXEC. DOC D, 90-1 at 1 (1967).

peace by shrinking the arenas of potential conflict."[23] This language argues against an understanding that space was intended to remain open to non-aggressive weapons systems. The introduction of any type of weapon would open the space arena to potential conflict.

Thus, these competing interpretations demonstrate why, after forty years, the debate on permissible use rages on. The ambiguity of the treaty language that stresses peacefulness of use while allowing military activities creates a loophole through which unintended activities may nonetheless enter the space arena.[24] The intent and understanding of the parties in adopting the OST in its final form remains unclear.

C. Moon Agreement

Another multilateral treaty guiding the use of space is the Agreement Governing the Activities of States on the Moon and other Celestial Bodies.[25] The Moon Agreement, however, is not a major player in the field of space law. It has not been signed or ratified by many countries, especially not those with a special interest in the subject

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[23] *Id.* at 2.

[24] BRUCE A. HURWITZ, THE LEGALITY OF SPACE MILITARIZATION 67 (1986). Hurwitz notes that the loophole was recognized by the then -United Nations Secretary General U. Thant, who is quoted as saying "I note with regret that the door is not yet barred against military activities."

[25] Agreement Governing the Activities of States on the Moon and other Celestial Bodies, G.A. Res. 34/68, U.N. GAOR, 34th Sess., Supp. No. 20, U.N. Doc. A/34/20 (1979)[hereinafter Moon Agreement].

matter.[26] Furthermore, the body of the treaty incorporates the "peaceful purposes" and "province of mankind" language found in the OST without further definition.[27] Nonetheless, the treaty introduces a few new concepts into space law and contains provisions relevant to military activities in space.

The first of the new concepts is the declaration that the moon should not become an area of international conflict.[28] It then specifies that "any threat or use of force or any other hostile act or threat of hostile act on the moon is prohibited."[29] Presumably, this language is meant to explain the moon's reservation for peaceful purposes, but it fails to answer the questions posed by the OST over the extent of permissible military uses.

The only military restrictions mentioned in the Moon Agreement are those on nuclear weapons in orbit around the moon, on establishing military bases or other installations, and in conducting military maneuvers on the moon.[30] Additionally, like the OST, it prohibits those

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[26] Ramey, *supra* note 5, at 94.

[27] Agreement on the Activities of States on the Moon and Other Celestial Bodies, Dec.5, 1979, G.A. Res. 34/68, U.M. FAOR, 34th Sess., Supp. No. 46, U.N. Doc. A/34/664 (1979) at Articles 3(1) and Article 4(1).

[28] *Id.* at Preamble.

[29] Moon Agreement, *supra* note 25, at Article 3 (2).

[30] Moon Agreement, *supra* note 25 at art. 3, para. 3 & art. 3, para. 4.

particular activities while allowing for all other activities carried out in accordance with the UN Charter.[31] Thus, the issues of use of force with UN Security Council authorization or in self-defense remain unresolved in this treaty as well.

In light of the controversy generated by the OST twelve years prior, these provisions show an intent not to establish a blanket prohibition against military participation in space. The contrast between the language of peace and the weapons of war in the space treaties demonstrates the diplomatic and political compromises that had to be undertaken to establish a preliminary regime in space.[32] The world community, however, has consistently rejected the compromise language and called for extraordinary measures that would guarantee true peace.

D. UN Resolutions

Since 1958, the international community has demonstrated a preoccupation with ensuring that outer space is used for purposes that do not create conflict. A permanent committee was even organized in the United Nations (UN) to foster international cooperation in space

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[31] *Id* at Article 2.

[32] NANDASIRI JASENTULIYANA, *The Lawmaking Process in the United Nations, in* SPACE LAW DEVELOPMENT AND SCOPE 33, 37 (Nadasiri Jasentuliyan ed., 1992).

exploration.[33] Furthermore, as the arms race between the USSR and the USA heated up, the UN passed numerous resolutions regarding the Prevention of an Arms Race in Outer Space.[34]

These resolutions emphasize the belief that space activities should be reserved for exclusively peaceful purposes and the benefit of all peoples. Additionally, the resolutions express a desire to avoid the extension of national rivalries into space and ensure that technology introduced into space does not have destabilizing effects on international peace and security.[35] Finally, each Resolution reiterates the need to adopt new measures, in the form of multilateral or bilateral negotiations, in order to prevent an arms race in space.[36]

Although not generally considered legally binding, the resolutions of the UN General Assembly (UN GA) may be seen as declarations of the "general will" of the international

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[33] Committee on the Peaceful Uses of Outer Space, G.A. Res. 1472 (XIV), U.N. GAOR, 14th Sess., (1959) [hereinafter COPUOS] .

[34] *International Agreements and Other Available Legal Documents Relevant to Space-Related Activities* [1999] http://www.oosa.unvienna.org/Reports/intlagree.pdf (listing nineteen UN Resolutions concerning the Prevention of an Arms Race in Outer Space from 1963 – 1996 and thirty nine UN Resolutions concerning International Co-operation in the Peaceful Uses of Outer Space).

[35] See *id.*

[36] *See generally*, UN Resolutions on the Prevention of an Arms Race in Outer Space.

community.[37] With regard to the use of outer space, however, there is much debate as to the weight that unanimous GA Resolutions are to be given.[38] Whether they are considered a reflection of what the law should be,[39] evidence of the international custom that has developed on space law,[40] or representations of the *de facto* codification of existing law,[41] states are required to respect the unanimous resolutions.[42]

It is argued that UN GA resolutions, in addition to commanding respecting, should and do, carry greater authority in developing space law.[43] The rationale for this proposition is that space law is a new branch of international law in which technological advances occur frequently and in which relatively few countries participate, In practice, both of the major space powers have accepted the legislation-making role of UN GA resolutions by declaring that certain space-related

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[37] OSCAR SCHACHTER, *Resolutions of the United Nations General Assembly as Evidence of Law, in* INTERNATIONAL LAW IN THEORY AND PRACTICE, 85 (1991).

[38] HURWITZ, *supra* note 24, at 13.

[39] *See id.*

[40] HURWITZ, *supra* note 24, at 18 (quoting the view of International Court of Justice Judge Tanaka in his dissenting opinion in the 1966 *South-West Africa Cases.*)

[41] HURWITZ, *supra* note 24, at 14.

[42] HURWITZ, *supra* note 24, at 13.

[43] HURWITZ, *supra* note 24, at 14 - 16.

resolutions were legally binding.[44] Therefore, to the extent that UN GA resolutions are unanimous on matters of space law, their pronouncements should be taken into consideration in determining what course to take in space activities.

E. Anti-Ballistic Missile Treaty

Another treaty relevant to the limitations placed upon space activities is the Anti-Ballistic Missile Treaty.[45] Signed in the midst of the Cold War, the USSR and the USA determined that it was in their self-interest to discontinue the nuclear arms build-up and render themselves defenseless to a nuclear attack.[46] This unprecedented step came about from the realization that an actual or perceived ability to strike with a nuclear weapon would cause political instability.[47]

In order to allay fears of nuclear annihilation, the parties agreed not to "develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based,

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[44] HURWITZ, *supra* note 24, at 19-20. These include Resolution 1721A(XVI), Establishing the United Nations Registry of Launchings; Resolution 1884 (XVIII) on the Question of General and Complete Disarmament; and Resolution 1962 (XVIII), the Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space.

[45] Treaty on the Limitation of Anti-Ballistic Missile Systems, May 26, 1972, U.S.-U.S.S.R., 23 U.S.T. 3435 (Oct. 3, 1972) [hereinafter ABM Treaty].

[46] Ramey, *supra* note 5, at 102.

[47] *Id.*

or mobile land-based."[48] Furthermore, the treaty provided that each party would allow for the verification of its compliance with the treaty without resorting to concealment or interference with the other party's technical means of verification.[49] These provisions are important in that the two specially affected countries recognized the practical need to limit their activities in space. They did so notwithstanding the lack of an existing legal obligation to do so under the OST.

Recent events, however, have lead to the withdrawal by the USA from the ABM Treaty.[50] In December 2001, President George W. Bush announced that, in light of the terrorist attacks of September 11, 2001, the US government required the ability to protect Americans from future attacks.[51] The withdrawal was in compliance with ABM Treaty Article XV.[52]

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[48] ABM Treaty *supra* note 45 at Article V(1).

[49] *Id* at Article XII.

[50] Manuel Perez-Rivas, *U.S. Quits ABM Treaty*, CNN.com/Inside Politics, December 14, 2001 *available at* http://www.cnn.com/2001/ALLPOLITICS/12/13/rec.bush.abm.

[51] *Id.*

[52] ABM Treaty, at Article XV ("[Each party] shall give notice of its decision to the other Party six months prior to withdrawal from the Treaty"), *See also*, Perez-Rivas *supra* note 50 (President Bush gave notice of the US withdrawal on December 13, 2001 and it became effective in June 2002.)

F. National Aeronautics and Space Act

US law contains much the same ambiguities found in the space treaties. [53] The National Aeronautics and Space Act of 1958 established a civilian organization to oversee the aeronautical and space activities of the USA.[54] In its Declaration of Policy and Purpose, the Act states that it is US policy that activities in space should be devoted to "peaceful purposes" for the "benefit of all mankind".[55] It then lists a host of scientific and engineering activities for which the National Aeronautics Space Administration will be responsible.[56]

Contrasting the "peaceful purpose" language, the Act declares that space activities associated with the development of weapons systems, military operations, or the defense of the United States shall be the responsibility of the Department of Defense.[57] The exclusion of military activities and weapons from NASA's purview, may indicate that they were not considered "peaceful" activities. Thus when the US negotiated the OST nearly a decade later,

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[53] "National Aeronautics and Space Act of 1958," 42 U.S.C. § 2451 (2004).

[54] *Id* at §2451(b).

[55] National Aeronautics and Space Act, *supra* note 53, at §2451 (a).

[56] *Id* at § 2451 (d) (1-9).

[57] National Aeronautics and Space Act, *supra* note 53, at §102(b).

weapons systems would not have been considered consistent with "peaceful purposes".

G. Conclusion

In totality, each of these instruments demonstrates a clear aspiration and attempt to limit certain activities from occurring in outer space. That intent, however, is juxtaposed against the inadequacies of the language chosen to carry out that objective. This reality has led to the actual militarization[58] of space since before the development of the space treaties.[59]

III. EXAMINING THE STATUS QUO: The Militarization of Space

A. Current Space Assets

1) *Military instruments.* Military space instruments include objects that are used to attack, destroy or damage targets, wherever located, or to support and enhance the performance and efficiency of armed forces and weapons systems on earth.[60] To name a few uses, military space systems are used for reconnaissance, surveillance, arms control monitoring and global positioning (GPS).[61] These uses contribute to mission planning, rescue missions,

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[58] "Militarization" is used to refer to the placement of military assets in space, whatever their character; "Weaponization", on the other hand, is used to refer to the placement of military weapons in space.

[59] Sean R. Mikula, *Blue Helmets in the Next Frontier: The Future is Now*, 29 GA. J. INT'L & COMP. L. 531, 548 (2001)

[60] HURWITZ, *supra* note 24, at 4.

[61] Anderson, *supra* note 1, at 22.

increased missile accuracy and avoidance of civilian casualties.[62]

Currently, US military assets based in outer space carefully avoid coming into direct conflict with the precise wording of the space treaties. There are no nuclear weapons, no military installations and no assets with strike capabilities in outer space.[63] Whether they will remain in compliance is debatable given proposed missions and weapon applications.[64] This will be discussed further below.

2) Civilian instruments. Civilian space instruments, on the other hand, are presumably those that do not contribute to any military missions. Ordinary people are dependent upon such space systems in carrying out their everyday lives. Communications satellites, for example, allow for television broadcasts, radio transmissions and telephone conversations.[65] Meteorological satellites help monitor the degradation of the ozone, changes in global

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[62] *Id.*

[63] Hurwitz, *supra* note 24, at 173.

[64] Anderson, *supra*, note 1 at 22, n. 12 (1995). "The USSPACECOM was given four operational missions in space: (1) space control (consisting of space surveillance, space force survivability, negation operations, and battle management, command, control and communications): (2) space support (consisting of launch and satellite control); (3) space force enhancement (consisting of warning, navigation communication and weather): and (4) space force application (consisting of offensive and defensive activities in support of ground operations)."

[65] HURWITZ, *supra* note 24, at 88.

climate patters and the greenhouse effect.[66] Satellite imagery also provides civilian businesses with the ability to locate natural resources, measure growth areas and design maps.[67]

3) Dual use instruments. Although it may seem convenient to classify space assets as either military or civilian, the reality is that many space assets are used simultaneously for military and civilian purposes.[68] To the chagrin of the proponents of the argument that space should be free from military assets, both military and civilian enterprises may use the knowledge gathered from space implements regardless of who owns or maintains the instrument.[69] Consequently, commercial systems are servicing military needs[70] and military machinery is used to benefit the civilian population.[71]

Communications satellites allow laypersons to send and receive voice, photographic and written messages while

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[66] DAVID TAN, *Towards a New Regime for the Protection of Outer Space as the "Province of Mankind"*, 25 YALE J. INT'L L. 145, 168 (2000).

[67] Thomas Bell, Lt. Col, USAF, *Weaponization of Space: Understanding Strategic and Technological Inevitabilities* 6, Occasional Paper No. 6, CENTER FOR STRATEGY AND TECHNOLOGY, Air War College (Jan 1999)

[68] Ramey, *supra* note 5, at 1.

[69] HURWITZ, *supra* note 24t 90.

[70] Ramey, *supra* note 5, at 146. *See also*: Bell, *supra* note 67, at 1 (explaining that two civilian satellite systems provided imagery for the US Armed Forces during the Gulf War).

[71] Ramey, *supra* note 5, at 148.

linking civilian and military leaders in minutes.[72] GPS is used by the military for navigation and search and rescue mission[73] while providing an ordinary commuter with help in locating favorite restaurants while driving![74] Likewise, weather data may be used to plan a day in the park or for the planning of military operations.[75]

These examples demonstrate the increased dependency on space systems by the entire world community. The use of and reliance upon these assets by both civilian and military entities makes the removal of military space systems difficult, if not impossible. Separating military and civilian satellite functions or abolishing military assets would be undesirable and unworkable as akin to splitting hairs.

As currently used, military space assets are within the letter of space law. As of yet, the militarization of space has not lead to its weaponization. The military uses of space are still "passive". No nation has developed the ability to maintain an arsenal in the space arena.[76] Future

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[72] HURWITZ, *supra* note 24, at 88.

[73] Anderson, *supra* note 1, at 22.

[74] On Star Corporation, Always There Always Ready (2003) *at* www. Onstar.com.

[75] HURWITZ, *supra* note 24, at 89.

[76] HURWITZ, *supra* note 24, at 173.

developments, however, are likely to test the limits of the legal framework in space.[77]

B. Future Military Developments. In spite of the inability of the space treaties and resolutions to prevent the placement of weapons in space, the United States currently has no operational space-based weaponry.[78] That is not to say that such weaponry is not contemplated, however.

1) *US rhetoric on space control.* In 1985 the United States Department of Defense created the US Space Command. Its mission was to incorporate the use of outer space in U.S. military deterrence efforts.[79] From its inception, one of the Space Command's main objectives was to pursue the ability to apply military force from and dominate outer space.[80]

Today, under the rubric of the US Strategic Command,[81] America's military space program envisions being able to

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[77] Bell, supra note 67, at 5 (explaining that for the US to weaponize space it must overcome legal and political barriers).

[78] Ramey, *supra* note 5, at 140.

[79] United States Space Command Brochure http://www.au.af.mil/au/awc/awcgate/usspc-fs/missions.htm (1995).

[80] *Id.*

[81] United States Strategic Command Mission statement, www.stratcom.mil. After the terrorist attacks on the United States on September 11, 2001, this command merged with the US Strategic Command, which is responsible for "early warning of and defense against missile attack and long-range conventional attacks.

attack terrestrial targets from space, and defeat ballistic missiles and cruise missiles in mid-flight.[82] These missions have already been assigned within the military services and the push to develop weapons to carry out these missions is well under way.[83] Space systems are perceived as so essential to US military operations that there is a perceived need to develop more even instruments to protect them and ensure their superiority.[84] As warfare continues to be aided by space technology, the military will rely further on space assets to determine how wars are fought and, conversely, with what weapons.[85] Following is a brief list of such instruments under development.

2) Future space assets

a) Anti-Ballistic Missiles. Anti-ballistic missiles are weapons that intercept enemy missiles during their trajectory from one point to another. They destroy their intended target by closing in, colliding with it.[86] These

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The command is charged with deterring and defending against the proliferation of weapons of mass destruction."

[82] United States Strategic Command Public Affairs, Fact Files, Space Missions, February 2004, *available at* http://www.stratcom.mil/factsheetshtml/spacemissions.htm.

[83] Ramey, *supra,* note 5, at 6.

[84] Michael N. Schmitt, *Bellum Americanum: The US View of Twenty-First Century War and its Possible Implications for the Law of Armed Conflict,* 19 MICH.J. INT'L L. 1051, 1068. (1998).

[85] *Id.* at 1055 (1998).

weapons systems are being developed in order to interrupt the trajectory of a missile in all phases of flight.[87] One particular phase of the trajectory, known as midcourse, is of particular relevance because it is a time when the missile leaves the earth's atmosphere and enters outer space.[88] Midcourse is also the longest time in the trajectory and thus provides the largest window of opportunity for intercept.[89] Because of this, anti-Ballistic missiles in space would have the best opportunity to engage and destroy their targets.

As discussed earlier, the USA and the USSR entered into the ABM treaty in order to prevent the use of such weapons and a possible arms build-up in space. The terrorist attacks against the USA on September 11, 2001, however, prompted a re-thinking of the source from which security threats originated. Accordingly, three months after the attacks, President Bush and his National Security Council determined that the greatest threat against the USA

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[86] MISSILE DEFENSE AGENCY, BALLISTIC MISSILE DEFENSE BASICS, *available at* http://www.acq.osd.mil/bmdo/bmdolink/html/basics.html.

[87] *Id.* There are three phases to a ballistic missiles trajectory: boost, midcourse and terminal. The boost phase occurs at launch and is the time when the weapon is ascending and accelerating towards its target. The midcourse occurs when the missile is freefalling towards its target. Most weapons leave the atmosphere during this phase. Finally, the terminal phase is that time when the device re-enters the earth's atmosphere and closes in on its target.

[88] MISSILE DEFENSE AGENCY, *supra* note 86.

[89] MISSILE DEFENSE AGENCY, BALLISTIC MISSILE DEFENSE CHALLENGE 2, (January 2004).

was not Russia, but terrorists or "rogue states who seek weapons of mass destruction."[90]

It is believed that these entities seek to "deliver death and destruction to our doorstep via missile", thus prompting the US to rush to develop methods to counter the danger.[91] President Bush concluded that the ABM Treaty served as a hindrance to the development of effective defenses against this terrorist missile threat.[92] Consequently, the USA eliminated the obstacle by withdrawing from the treaty and promised to "develop, test, and deploy anti-ballistic missile systems for the defense of its national territory, of its forces outside the United States, and of its friends and allies."[93]

b) *Laser beam weapons*: The US Air Force is also discussing the possibility of using space-based lasers or the use of space based mirrors to direct ground-based lasers for defense.[94] Space based lasers are weapons which direct energy into an intense electro-magnetic radiation to

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[90] U.S. DEPT OF STATE, OFFICE OF THE PRESS SECRETARY, ABM TREATY FACT SHEET, (Dec 13, 2001) *available at* http://www.state.gov/t/ac/rls rm/2001/6847.htm.

[91] *Id.*

[92] U.S. DEPT OF STATE, *supra* note 90.

[93] Text of Diplomatic Notes sent to Russia, Belarus, Kazakhstan and the Ukraine on December 13, 2001, US State Department text, Office of the Spokesman, December 14, 2001. *available at* http://www.state.gov/r/pa/prs/ps/2001 /6859.htm.

[94] Schmitt, *supra* note 84, at 1068 n. 77.

destroy targets.[95] These weapons destroy their targets by delivering a high impulse shock that causes structural collapse or the burning of a hole through an adversary weapon.[96]

c) Space maneuver vehicle: Additionally, the United States Air Force has requisitioned a Space Maneuver Vehicle (SMV) projected to fly through space like an airplane and avoid maintaining a set orbit.[97] It is intended to provide Intelligence, Surveillance and Reconnaissance (ISR), satellite recovery and deployment and other mission requirements. Making the system weapons-capable would be a logical evolution for this military asset because, as is often the case, military support assets may be convertible into weapons systems.[98] What is now a simple satellite or transport vehicle may be transformed into a strike-capable asset.[99]

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[95] MARIETTA BENKO, WILLEM DE GRAAF & GIJSBERTHA C.M. REIJNEN, SPACE LAW IN THE UNITED NATIONS 155 (1985).

[96] Anderson, *supra* note 1, at 24.

[97] AIR FORCE RESEARCH LABORATORY, SPACE VEHICLES DIRECTORATE, SPACE MANUEVER VEHICLE (2002), *available at* http://www.vs.afrl.af.mil/Factsheets/smv.html.

[98] MENON, *supra* note 10, at 14 – 15. "Just as an aircraft or seacraft can go to war, peaceful space transportation will always remain convertible into war craft. Military an non military uses are linked to a great extent."

[99] Peter R. Huessy, Testimony before the House Committee on Science (October 11, 2001), (transcript *available at* http://www.house.gov/science/space/oct11/huessy.htm). Mr. Huessy is the President of PRH & Company, Potomac, Maryland and Senior Defense Associate at the National Defense University

d) *Other Weapons*. Finally, the USAF Scientific Advisory Board has recommended additional technologies be developed, including space mines and space decoys.[100]

IV. THE NEED FOR A VIABLE COMPROMISE

As is evident, many of the projected military uses of space will differ completely from current uses. Unlike current military assets, the conceptual weapons will no longer passively collect information. They will actively pursue space dominance through the threat and projection of force in that arena.[101]

It is this active pursuit of space dominance that may violate space law and must have its permissibility examined. The threshold for determining what is allowed in space should not be whether a military device is merely passive or non-aggressive,[102] defensive versus offensive. Instead, the test for legality should be whether the instrument or its effects violate the limitations imposed by the treaty.

Foundation, Fort McNair, D.C. In his testimony, he touts the SMV as a vehicle that would be able to "quickly and accurately travel to attack a critical target of grave concern to the US."

[100] Bell, *supra* note 67, at 1 (citing USAF Scientific Advisory Board, NEW WORLD VISTAS: Air and Space Power for the 21st Century).

[101] *Id* at 8, "With technological superiority, America can threaten to escalate [a crisis] to prevent an unwanted turn of events".

[102] Ramey, *supra* note 5, at 79.

Both the individual weapons and the missions of the US military in space must be evaluated against OST Treaty language limiting activities in space. Specifically, they must be analyzed against the express verbiage of the treaty as well as its goal to preserve space for peaceful purposes and its use by all states.[103] If the "space dominance" mission crosses the line between what is a acceptable use and what is prohibited, the instruments and uses will find themselves at odds with current international law on space.[104]

A) Letter of the law[105]. The analysis of the permissible uses of space must begin with a review of approved state actions at international law. The Charter of the United Nations sets out the general rules.

1) Charter of the United Nations - UN Charter Article 2 articulates the general rule that in their relations, member states shall "refrain … from the threat or use of force against the territorial integrity or political

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[103] *Id.*

[104] Schmitt, *supra* note 84 at 1086.

[105] *See generally* BRUCE A. HURWITZ, THE LEGALITY OF SPACE MILITARIZATION 55-60 (1986) (providing the analysis framework for this discussion).

independence of any state, or in any other manner inconsistent with the Purposes of the United Nations."[106]

Although the "threat or use of force" is generally understood by Western nations to mean armed force, other interpretations are also accepted.[107] Specifically, many Third World countries view economic, political and psychological forms of coercion as threats also.[108]

Under the latter interpretation, the less developed countries can argue that US space weapons will threaten their sovereignty. Having no means to protect themselves from the dangers posed by space artifacts, they will claim that the presence of US weapons is a form of psychological coercion. Should a country defy US policy, it could assert military might in an unmitigated fashion from outer space. Such activities will likely be considered in violation of the UN Charter, at least by this category of states.

2) The Outer Space Treaty - The impending activities in space must also be examined against the express language in the OST. It is very likely, as detailed below, that the following provisions will ultimately conflict with proposed

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[106] U.N. CHARTER art. 2 para. 4.

[107] Oscar Schachter, *InternationalLaw: The Right of States to Use Armed Force,* 82 MICH. L. REV. 1620, 1624 (1984).

[108] *Id.*

uses. The new uses will therefore be considered to be a violation of the OST.

a) *The use of outer space "shall be carried out for the benefit and interest of all countries".*[109] It is generally understood that this treaty provision does not impose a duty to act exclusively to benefit all countries. Rather, it serves to compel states to refrain from interfering with the rights and interest of other states.[110]

Article I of the OST provides that outer space shall be free for exploration and use by all states.[111] It also guarantees that states shall enjoy free access to all areas of celestial bodies.[112] Instituting measures that deny a political adversary its right to pursue their freedom of movement and information gathering in space would interfere with the right of free navigation and exploration in space.

Thus the pursuit of the USSPACECOM'S mission of negation operations [113] will quickly run afoul of this treaty provision. For example, assume that the US, in its desire to protect its space assets, develops the ability to place mines in space. The placement of these mines would be

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[109] Outer Space Treaty, U.N. GAOR, 21st Sess., Supp. No. 16, U.N. Doc A/6316 (1967), Article I (1).

[110] HURWITZ, *supra* note 24m at 56, n. 11.

[111] OST *supra,* note 109 at Article I.

[112] *Id.*

[113] *See* Anderson, *supra* note 1 at 19.

critical. They would be used to protect the area immediately surrounding the assets themselves. Conceivably, they could also guard the route a space vehicle may need to use to access the device for repairs or maintenance.

These actions would impose barriers to other nations desiring access to certain areas of space. Because the US actions would effectively deny the right of entry to the area to other states, it will be acting in violation of this provision. Only the US would derive benefit from the use of that space, thus not allowing any other nation to receive a benefit from the use of the location. Furthermore, another country's space device may be destroyed upon inadvertently traversing the illegally protected area.

b) *"Outer Space…is not subject to national appropriation by … means of use or occupation or any other means."* [114] To determine if the denial of access may result in the appropriation of an area, the law of territorial disputes proves helpful. Under international law, an uninhabited *territory* may be acquired by various means including discovery, possession and administration, as well

[114] OST, *supra* note 109, at Article II.

as historical, geographic and economic connections to the area.[115] The most important of these is actual possession and administration of territory.[116]

Sovereignty is exercised over a territory when a state establishes exclusive control and authority over it.[117] The state must demonstrate that it manages the area to the exclusion of all others.[118] This exclusion must occur for over a moderate to substantial period of time, with the acquiescence or lack of opposition from a challenger.[119]

Admittedly, aside from celestial bodies, space itself is void of territory to be acquired. Nevertheless, a parallel may be drawn to the principles of territorial acquisition to assert that by denying access to other nations to portions of outer space, the USA would obtain for itself the exclusive use and benefit of the area in a manner similar to acquisition. An actual land mass is not necessary as is evidenced in the extension of state sovereignty into the air above territories on earth.

The US practice of space dominance and space negation may exhibit the attributes of sovereignty over a territory.

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[115] *See generally*, S.P. SHARMA, TERRITORIAL ACQUISITION, DISPUTES AND INTERNATIONAL LAW, (1997).

[116] *Id.* At 197.

[117] SHARMA, *supra* note 115 at 188.

[118] SHARMA, *supra* note 115 at 198.

[119] SHARMA, *supra* note 115 at 198.

By mining, patrolling or otherwise barring other nations from placing their assets or people in a particular area, the US would in fact manage the area to the exclusion of all others. If no other space faring nation develops the ability to oppose this segregation for an indeterminate period of time, such an exclusive use would generate "facts on the ground" that all but one sovereign is exercising control in the region.

Aside from generating an outcry that the USA has *de* facto appropriated the area for itself, the US may provoke an adversary to take action. Under the guise of self-defense,[120] a state may feel justified in using force to secure its right to free access to all areas of space.[121] In doing so, the US may be found in violation of the Treaty provision quoted herein as well as the next treaty provision.

c) *"peaceful purposes."* [122] Another provision of the OST that the US may violate is also the most important in considering what a permissible use of space is. The preface to the OST reserves the use of outer space for

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[120] For a discussion of the right of self-defense, see *infra*, pp. 46 –48.

[121] Schachter, *supra* note 107, at 1625 (explaining that under one justification for the lawful use of force it that it may be used to solely vindicate a legal right such as the right of passage through international waters; this justification has minimal acceptance).

[122] OST, *supra* note 109, at Article IV (2).

peaceful purposes. Article IV of the Treaty also reserves the moon and other celestial bodies for peaceful purposes.

As discussed above, defining what constitutes peaceful and non-peaceful activities has plagued the effectiveness of the OST. Most commentators, however, conclude that "peaceful" does not equate to "non-military".[123] As such, military activities in space are permitted so long as they do not create threats to or breaches of the peace.[124]

The act of placing weapons systems in space, however, will raise questions as to whether they create a prohibited threat to the peace. The UN Charter itself provides guidance for determining what activities are permissible in space.[125] According to Article 39 of the Charter, acts of aggression and threats to the peace are illegal.[126] Although it was generally understood that "threats to the peace" involved military aggression that threatens international peace, the term was not explicitly defined in that manner in the Charter.[127]

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[123] See *generally supra* pp. 6-10.

[124] HURWITZ, *supra* note 24, at 69.

[125] OST *supra* note 109 Article III.

[126] U.N. CHARTER art 39 provides that the Security Council shall determine the existence of any threat to the peace, breach of the peace or act of aggression.

[127] INGER OSTERDAHL, THREAT TO THE PEACE: THE INTERPRETATION BY THE SECURITY COUNCIL OF ARTICLE 39 OF THE UN CHARTER 18 (1998).

Hence, the UN has accorded much flexibility to the term. Threats to the peace have been found to exist when situations arise that create social upheavals, political instability, economic crisis, and humanitarian emergencies, to name a few.[128] A common theme throughout these examples is that the situation in question produces a crisis with either serious human suffering or a direct military threat by one state against another.[129] Thus, in determining whether the placement of weapons in space may be considered a "threat to the peace", we first analyze whether it incites a condition of crisis.

The community of nations, through UN bodies, has frequently condemned the drive to place weapons in space. For half a century, UN resolutions incessantly express concern over the danger and instability that an arms race in space may engender.[130] Furthermore, they express a desire that outer space be used for peaceful purposes and not become and arena for an arms race.[131] Finally, they

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[128] *Id* at 19.

[129] *See* OSTERDAHL, *supra* note 127, at 85.

[130] See generally, UN General Assembly Resolutions concerning Disarmament and the Prevention of an Arms Race in Outer Space, *available at* http://www.un.org.

[131] *Id.*

urge countries with the ability to develop space weapons to reach agreements that would prevent their proliferation.[132]

It is reasonable to deduce that forging ahead with space weaponization may result in national and international condemnation.[133] The opposition it will provoke may well create a political crisis with serious repercussions. Once a crisis is established, it will be necessary to establish whether it then results in serious human suffering or a direct military threat by one state against another. The focus here must be on whether it creates a direct military threat.

As detailed above, the proclamations by the international community demonstrate a real fear of the consequences of placing weaponry in space. Although it is unknown whether the UN Security Council would actually decree such an action to be a "threat to the peace"[134], it is apparent from the sheer number of declarations against it that other nations would perceive it as such.

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[132] *See* UN General Assembly Resolutions *supra* note 130.

[133] *Cf.* Colonel Guy B. Roberts, *The Counterproliferation Self-Help Paradigm: A Legal Regime for Enforcing the Norm Prohibiting the Proliferation of Weapons of Mass Destruction*, 27 DENV. J. INT'L L. & POL'Y 483, 487-488 (1999) (weapons of mass destruction have produced and continue to produce great public outcry due to their potential devastating effects; thus, the UN as declared that the proliferation of these types of weapons constitutes a threat to international peace and security).

[134] OSTERDAHL, *supra* note 127, at 104-105 (1998) (explaining that the Security Council has made such proclamations and sought action when the perpetrators were Third World countries with no permanent member ally with an interest in shielding the target country by use of the veto).

States vexed by the prospect of being fired upon from outer space could, consequently, seek to retaliate or take preemptive action against the practice.[135] The inability of certain states to counter US space combat activities could lead to political turmoil upon the introduction of weapons into space. At that juncture, the weaponization of space would be a de facto threat to the peace. This would certainly result in a violation of the OST's mandate to reserve the use of space for "peaceful purposes."

The consequences of US actions may well lead to outcomes that are contrary to the enumerated OST provisions, regardless of whether the weapons in space can be labeled as offensive or defensive. The act of weaponizing space may create an escalation of tensions in the international community with uncontrollable and unforeseen effects. As rival countries undertake efforts to protect themselves and prevent the US from continuing its drive to station weapons in space the US ensures that space will not be reserved for peaceful purposes and denies its use by all states.

B) *spirit of the law* - In addition to violating the letter of the law, future US space missions and assets will

[135] Oscar Schachter, *International Law: The Right of States to Use Armed Force,* 82 MICH. L. REV. 1620, 1634. (1984).

violate the spirit of space law. As discussed above, since the beginning of space exploration, various UN resolutions have sought to preserve space as an area of peaceful exploration. Furthermore, the spirit in which the OST was negotiated is revealed in the words of the US representative. Ambassador Goldberg acknowledged that the "greatest danger facing us in outer space comes not from the physical environment… but from our own human nature, and from the discords that trouble our relationship here on earth….We must make sure that man's earthly conflicts will not be carried into outer space."[136]

He also conceded that the central objective of the OST was to ensure that outer space and the celestial bodies were "reserved exclusively for peaceful activities" in the Spirit of the Antarctic Treaty of 1959.[137] In that treaty, the term "peaceful purposes" was understood to mean that the continent would remain completely demilitarized.[138]

Even then-Senator Lyndon B. Johnson appeared before the UN in 1958 to present a US resolution to guarantee space

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[136] GOLDBERG, *supra* note 19, at 9.

[137] *Report of the Committee on the Peaceful Uses of Outer Space Annex III*, Report of the Legal Sub-Committee on the work of its 5th Session, 12 July – 4 August and 12-16 September UN DOC A/AC.105/C.2/SR57 at 6 (1966), *see also* The Antarctic Treaty, Dec.1, 1959, 402 U.N.T.S 71.

[138] The Antarctic Treaty, Dec.1, 1959, 12 U.S.T. 794, T.I.A.S. 4780, 402 U.N.T.S 71.

exploration would be conducted for peaceful purposes.[139] On that occasion, he avowed, that space must not be corrupted by bringing to it the very antagonisms which "we may, by courage, overcome and leave behind forever…. If we fail now … we know that the advances into space may only mean adding a new dimension to warfare."[140]

It is clear from these examples of US attempts to influence space policy that the intent of the resolutions and the ensuing treaties was to prevent warfare in space. The term "peaceful purposes" was initially understood to encompass a demilitarized zone. This is the spirit in which the OST was negotiated.

The world community, including the US, originally set out to forever censure the use of weapons in space. It is likely that the treaty language evolved in order to suit perceived needs during the Cold War. Nonetheless, the US should seek to continue to comply with the objective of the OST: to prevent warfare in space.

The planned military uses of outer space defy the text and the goal of the Outer Space Treaty. They do so in order to provide the ultimate high ground from which to

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[139] JOHNSON, *supra* note 22, at 1.

[140] *Id.* at 2.

apply deadly force[141] and defeat an enemy. Proceeding with that military goal may result in the need to abrogate or withdraw from the treaty. A better enterprise would be to once and for all fix the treaty language so that the need for such actions would be obsolete.

C) *Why Should We Care?* As the sole super-power in the world today, the USA has the ability to act unilaterally in many cases. This is so even if it is done in opposition to the popular will of the global community. Although it may be willing to overlook the fears of space wars as histrionics, it may not be able to ignore the more practical consequences of its actions.

1) Practical problems. On the most basic level, the weaponization of space will make other states defensive about the safety of their own space-based commercial systems. Because certain satellite orbits are coveted for the view they provide and the capability to pass information through space, they are extremely valuable to both military and civilian entities.[142] The placement of civilian assets, military weapons, and any array of objects

[141] Schmitt, *supra* note 84, at 1068.

[142] Bell, *supra* note 67, at 6.

to escort or defend other military assets in these orbits will lead to chokepoints in space."[143]

This will then lead to overcrowding and conflicts over asset placement and freedom of movement.[144] As space becomes more crowded, the probability of collisions between systems increases. These chokepoints and the possible strife they may create should serve as a deterrent to weaponization.

Collisions between weaponized systems and unprotected systems would likely lead to the destruction of the unprotected system. Furthermore, the debris caused by such an event would jeopardize another state's asset. The domino effect caused by the accidental or intentional destruction of a space asset could have deleterious effects on innocent countries and their populations.[145]

The extended cause and effect of a collision in space can ultimately lead to possible human exposure to radiation from the destruction or damage to nuclear power sources used in modern satellites. The resulting release of hazardous materials and gasses may prove harmful to the

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[143] *Id.*

[144] *Cf.* Bell, *supra* note 67, at 6 for an analogy of how this occurs in the high seas.

[145] TAN, *supra* note 66, at 152.

space environment and spill onto Earth.[146] Further damage may be caused to innocent third countries as debris strikes their territory from above. Space weapons would essentially exist as a ticking time bomb, waiting for the moment of detonation.

2) *Serving national interests.* In spite of the possible uproar created by weaponization, the USA may nonetheless justify weaponization as necessary to further our national interests. Weaponization is viewed as being able to provide security to the US homeland[147] and protection of valuable space resources.[148] The UN Charter is incorporated into the OST after all, and it permits acts in defense of national interests.[149] Unfortunately, weaponization may actually produce consequences adverse to US national interests.

a) *Challengers in Space.* To begin with, there are currently several countries with the capacity to also develop space weapons.[150] Armament in space would make the world community vigilant about their own national security

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[146] TAN, *supra* note 66, at 149 (Citing the Cosmos-954 incident wherein a nuclear-powered satellite disintegrated upon reentry of the Earth's atmosphere, spilling radioactive debris across Canada).

[147] U.S. DEPT OF STATE, OFFICE OF THE PRESS SECRETARY, ABM TREATY FACT SHEET, (Dec 13, 2001) *available at* http://www.state.gov/t/ac/rls rm/2001/6847.htm.

[148] Bell, *supra* note 67, at 7.

[149] U.N. CHARTER art. 51.

[150] BENKO ET AL, *supra* note 96, at 152 (These include India, China, Japan, Libya and Brazil).

interests in space. Nations currently without space capabilities would feel threatened by the prospect of being unable to defend against an attack from above.[151]

This could lead both allied and adversarial countries to increase research and development in a sprint to place space defense systems in the heavens. The overcrowded and volatile space arena may provide adversaries with the incentive to challenge each other in outer space.

b) *Escalation*. Moreover, as more assets are placed in orbit, more assets will need protection from enemy anti-satellite systems.[152] This would lead to further escalation of space weapons systems as weapons, counter-weapons, escorts to weapons and other new technologies are developed to provide further defensive measures. The arms race in outer space would become a dreaded reality.

c) *Endangering the Homeland*. Additionally, the space protection mission will require critical satellite uplink and downlink facilities in order to "execute space control and force application missions against enemy

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[151] Julie A. Jiru, *Comment: Star Wars and Space Malls: When the Paint Chips off a Treaty's Golden Handcuffs*, 42 S. TEX. L. REV. 155, 177 (2000). *See also*, BENKO, *supra* note 96 at 160 for the proposition that the militarization of space has caused great concern for other nations over the security of their territory; these concerns have been repeatedly voiced in both national and international circles.

[152] Bell, *supra* note 67 at 12

targets."[153] Although missions will be discharged in space, space combat operations will be increasingly based from computer facilities with the United States.[154] This will make the ability to defend US communications and intelligence gathering capabilities at home critical."[155]

As a result, the dangers to the continental USA will likely increase as poor or less developed adversaries will seek to strike the space assets from more accessible areas on earth. Their inability to attack US space assets located in space will continue to bring the battle home rather than have it projected overseas as is currently done in US military warfare. Consequently, this defeats the entire rationale of placing weapons in space to protect the homeland.

d) *Political Implications*. Beyond the legal and practical implications of the development of offensive missions and weapons for use in outer space, the political implications of this course of action must also be taken into account.[156]

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[153] Bell, *supra* note 67, at 15.

[154] *Id.*

[155] Bell, *supra* note 67 at 15.

[156] Anderson, *supra* note 1, at 28.

Just as the advent of nuclear weapons lead to the possibility of a nuclear arms build up between the US and the USSR,[157] the arrival of weapons in space will lead to an arms build up in the heavens. Although the world has become accustomed to and even dependent on military uses of space, it has unyieldingly resolved to not have weapons in space.[158] The presence of any weapon, whether it is formally labeled an offensive or defensive weapon, can be perceived as a threat and create dire consequences.

V. MOVING FORWARD: REFINEMENT OF THE SPACE TREATY

A. THE USE OF FORCE IN SPACE

It is irrefutable that international law and the provisions of the UN Charter have been incorporated into the Outer Space Treaty.[159] It is also clear that both international law and the UN Charter recognize the right of self-defense for every nation if it falls under attack.[160] The US rationale for placing weapons in space is that they are necessary to be able to defend against a threat. Thus,

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[157] Ramey, *supra* note 5, at 102.

[158] *See generally*, UN Resolutions on the Prevention of an Arms Race in Outer Space.

[159] Major Christopher M. Petras, *Military Use of the International Space Station and the Concept of "Peaceful Purposes"*, 53 A.F. L. REV. 135, 156.

[160] U.N. CHARTER, Art. 51.

the second issue to contend with in outer space is what gives rise to the right to self-defend.

1) *self defense*

Many scholars throughout time have discussed the meaning of the concept self defense. Although a full analysis of its use is beyond the scope of this paper, a primer on what it generally encompasses is appropriate.

Under customary international law, force may be used in self-defense if it is in response to an actual attack or if a threat is imminent.[161] This reading of the right to defend is more expansive than that promulgated by Article 51 of the UN Charter.[162] Custom incorporates the right of anticipatory self-defense. This is understood to mean that aside from an actual attack, force can be used when the need is "instant, overwhelming and leaves no choice of means and no moment for deliberation"[163]

The UN Charter did not intend to do away with the right to anticipatory self defense by its more narrow language.[164] It is considered a viable rationale for using

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[161] Kelly J. Malone, *Preemptive Strikes and the Korean NuclearCrisis: Legal and Political Limitations on the Use of Force*, 12 PAC. RIM L. & POL'Y 807, 809 (2003).

[162] U.N. CHARTER, Art. 51.

[163] Malone, *supra* note 161 at 811 (quoting US Secretary of Defense Daniel Webster in a diplomatic note to the British after an attack on a vessel on US territory in 1842).

[164] *Id* at 1633

force so long as a threat is "so clear and the danger so great that defensive action is essential for self preservation."[165]

Recently, however, the US has subjected the doctrine of anticipatory self-defense to a more liberal interpretation. After the terrorist attack on the US, President George W. Bush announced, "If we wait for threats to fully materialize, we will have waited for too long."[166] The "Bush Doctrine" purports to use force on occasions when a threat is *not* imminent.[167] This articulation is not considered to be within the legal framework for the use of force.[168]

2) *Principles of Force*. International law does not dictate what type of action or what amount of force must be used in exercising the right of self-defense.[169] In fact, the law of armed conflict works to limit the use of force by establishing principles that guide its use. A brief

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[165] Schachter, *supra* note 107, at 1634.

[166] President George W. Bush, Graduation Address at the U.S. Military Academy (June 1, 2002), quoted in Patrick McLain, *Settling the Score with Saddam: Resolution 1441 and Parallel Justifications for the Use of Force Against Iraq*, 13 DUKE J. COMP. & INT'L L. 223, n. 16 (2003).

[167] Patrick McLain, *Settling the Score with Saddam: Resolution 1441 and Parallel Justifications for the Use of Force Against Iraq*, 13 DUKE J. COMP. & INT'L L.. 223, 282 (2003).

[168] *Id.*

[169] Major Christopher M. Petras, *The Use of Force in Response to Cyber-Attack on Commercial Space Systems – Reexamining "Self-Defense" in Outer Space in Light of the Convergence of U.S. Military and Commercial Space Activities*, 67 J. AIR L. & COM. 1213, 1260 (2002).

discussion of the principles that must be applied in the use of force is important to understanding how the force is to be controlled. These principles include:

a) Necessity - In the exercise of its right of self-defense, a state may only apply the amount of force that is necessary to repel the attack.[170] This principle encompasses only the amount of force "required for the partial or complete submission of the enemy."[171]

b) Proportionality - The principle of proportionality, on the other hand, confines the use of defensive force to that amount which is commensurate with the initial attack.[172] That is, a responsive use of force may only be comprised of the minimum expenditure of "time, life and physical resources" required to counter what was originally applied.[173] The application of force should ensure the safety of US forces and protected property or persons.[174]

c) Discrimination - the third tenet of self-defense is that it must be applied only against lawful military

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[170] *Id* at 1261.

[171] *See* Petras *supra,* note 169 at 1263.

[172] Petras, *supra* note 169 at 1262.

[173] Petras *supra* note 169 at 1263.

[174] UNITED STATES AIR FORCE JUDGE ADVOCATE GENERAL'S CORP, AIR FORCE OPERATIONS AND THE LAW: A Guide for Air and Space Forces 27 (2002).

objectives.[175] This requires the use of best efforts to avoid the death of non-combatants or the destruction of their property.[176] It involves the cautious selection of targets, weapons and the manner in which the weapons will be employed.[177] Moreover, the means and methods of warfare violate this principle when their effects cannot be controlled so as to minimize damage to civilian populations and objects.[178]

Problems with the use of force in space become evident when applying these precepts to an outer space scenario. Discharging weapons in the unique environment of space may exceed what is permissible under the law of armed conflict. Specifically, the principles of proportionality and discrimination are liable to be violated.

In the crowded space environment, the principle of proportionality will be difficult to uphold. As discussed supra, the destruction of any asset in space may have a domino effect that engulfs other machinery in space. Thus, although a country may seek to either defensively or

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[175] *Id.*

[176] UNITED STATES AIR FORCE JUDGE ADVOCATE GENERAL'S CORP *supra* note 174 at 26.

[177] Petras, *supra* note 169, at 1263.

[178] UNITED STATES AIR FORCE JUDGE ADVOCATE GENERAL'S CORP *supra* note 174 at 26.

offensively attack the assets of an adversary, doing so will harm many more objects than necessary.

Upon the destruction of an object in space, debris particles of less than 1 centimeter can produce ruinous effects for multiple space systems.[179] Ultimately, the obliteration of objects in space may render entire portions of the various earth orbits unusable.[180] An aftermath of this magnitude would far exceed what is necessary to protect US interests in space. An attack would be disproportionate to the military advantage obtained. It will in all probability even result in the destruction of the very item being protected.

Similarly, the principle of discrimination would make it difficult to justify the deployment of weapons in space. As discussed above, most space assets provide benefits to both civilian and military populations. This renders it nearly impossible to segregate or avoid collateral damage to civilian space systems. The destruction of any space system can have a profound effect on military and civilian entities.

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[179] TAN, *supra* note 66, at 152.

[180] *Id.* The low earth and the geosynchronous orbits are the trajectory in which most space instruments circle the earth. Pursuing the destruction of objects in space may exponentially increase the amount of debris and "lead to the formation of a debris belt around the Earth by the end of this century."

That alone, however, is not determinative in the discrimination analysis. The law of war allows for the targeting of a civilian object if it contributes to an adversary's military capabilities.[181] The discussion then turns once again to whether that attack is proportionate to the military advantage gained.[182] The discussion supra posits that the effects may be too extensive to permit this course of action. Likewise, these consequences argue against sanctioning the application of deadly force in space.

B. RETHINKING THE APPLICATION OF SELF DEFENSE IN SPACE

Although Article III of the OST states that the exploration and use of outer space is to be governed by international law and the UN Charter,[183] It is not clear, however, that force *must* be used *in space* in asserting the right to self-defense. Allowing for the direct integration of all aspects of the UN Charter into space activities is not in the best interest of the earth's inhabitants. Outer space amounts to a unique environment that requires in-depth examination of how items interact prior to the

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[181] UNITED STATES AIR FORCE JUDGE ADVOCATE GENERAL'S CORP, AIR FORCE OPERATIONS AND THE LAW: A Guide for Air and Space Forces *supra* note 174, at 39.

[182] *Id.*

[183] OST, Article III.

mechanical implementation of concepts perfectly acceptable on earth.[184]

The only way to remain in compliance with the UN Charter, the Outer Space Treaty, and the general will of the global community is to freeze the current level of military involvement in that arena. That is not to say that assets of a military nature should no longer be placed in space, but that assets with a capacity for destruction should not be introduced.

Thus, all states should be bound to refrain from introducing any weapons in space notwithstanding the right to self-defend. Measures should be implemented on multiple levels to safeguard space from weaponization. This type of restraint in military affairs is not unprecedented and has presented itself in various scenarios.

In 1972, the Anti-Ballistic Missile Treaty was adopted upon the realization that an actual or perceived ability to strike with a nuclear weapon would cause political instability.[185] It bears mentioning that, in spite of the recent termination of the ABM Treaty, the possibility of political instability has not changed and may have increased. Given the numbers of states that have the

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[184] TAN, *supra* note 66 at 158.

[185] Petras, *supra*, note 159, at 156.

ability to develop space weapons in their own defense, political instability may be even more probable today.[186] What is more, Russia's recent announcement that it has developed a means to counter any US missile defense initiative may hail the beginning of the much-predicted arms race in space. [187]

Historically, restraint was also evidenced when Antarctica was declared a place that should be free from weapons and open only to scientific exploration and cooperation.[188] The Antarctic Treaty provides for complete disarmament on that continent,[189] while maintaining that such a restricted use furthers the objectives of the UN Charter.[190] Furthermore, it explicitly states that no party is to engage in any activity contrary to the peaceful

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[186] CENTRE FOR DEFENSE AND INTERNATIONAL SECURITY STUDIES, BALLISTIC MISSILE THREATS, NATIONAL CAPABILITIES AT A GLANCE, http://www.cdiss.org/bmglance.htm. It is currently estimated that at least 36 countries currently posses ABMs, including Libya, Pakistan, North Korea and China.

[187] David Ballingrud, *Unproven Missiles Stir Fears of Renewed Arms Race*, St Petersburg Times, April 11, 2004 *available at* http://www.sptimes.com/2004/04/11/news_pf/Perspective/Unproven_missiles_sti.shtml (In reaction to the US withdrawal from the ABM Treaty, Russia announced the development of a hypersonic intercontinental cruise missile in February 2004; in March, the USA announced the test of a similar vehicle; In April, Japan announced it would build a missile shield to protect itself; in response, China protested against the project as a destabilizing factor in Asia).

[188] The Antarctic Treaty, Dec.1, 1959, 12 U.S.T. 794, T.I.A.S. 4780, 402 U.N.T.S 71 at art. I and art. II.

[189] *Id* at Article I.

[190] Antarctic Treaty, *supra* note 188 at Preamble.

objectives of the treaty even as it complies with the UN Charter.[191]

This language clearly establishes Antarctica as a special place, different from other locations on earth. This difference justifies limiting military activities.[192] Similarly, by definition, space is also different from earth. It is a place that should remain intact in order to secure the very existence of Earth. In harmony with the Antarctic Treaty, the rejection of any activity that may have detrimental effects to the Earth or its occupants should be viewed as complying with the UN Charter. Its pursuit of maintaining international peace and security by preventing and removing threats to the peace is of particular importance.[193]

Similarly, the Treaty on the Non-Proliferation of Nuclear Weapons[194] recognized nuclear weapons as a special type of armament that merited exceptional treatment. The deployment of a nuclear weapon can result in such devastation to the environment and to mankind that their

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[191] Antarctic Treaty, *supra* note 188 at art. X.

[192] Antarctic Treaty, *supra* note 188 at art I (prohibits "*any* measures of a military measure" with the exception of military personnel or equipment for scientific research or other peaceful purposes [Emphasis added]).

[193] U.N.CHARTER art. 1 para.1.

[194] Treaty on the Non-Proliferation of Nuclear Weapons, TIAS 6839, 21 U.S.T. 483, 1970 U.S.T. LEXIS 502 (hereinafter NPT).

use was banned.[195] Yet, the provisions of the UN Charter were also said to apply to this treaty.[196]

The rationale for entering into the Non-Proliferation Treaty is applicable in space also. The effects of these weapons are so far-reaching that they can only be comparable to the damage caused by nuclear weapons. Like nuclear weapons, space weapons warrant special attention because of their proclivity for causing uncontrollable consequences such as radioactive waste and debris, global political fallout, a race to place armament in space, and possibly even ensnare the world in space warfare.

Although there are current international efforts under way to curb any increase in space debris,[197] only UN resolutions aim to limit the very objects that would create the debris.[198] Banning these weapons is the only way to prevent their proliferation. Such a ban would nonetheless be in compliance with the UN Charter's purpose of securing international peace and security.

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[195] Roberts, *supra* note 133, at 487 (explaining that the threat posed by nuclear weapons is "qualitatively different" from other weapons because of their ability to cause physical and psychological damage).

[196] NPT at Preamble.

[197] TAN, supra note 66, at 153 (Both Russia and the US have acknowledged that space debris is a serious hazard. Thus the Committee On the Peaceful Uses of Outer Space is attempting to set standards for the minimization of man-made debris).

[198] *See supra*, note 34 for information on UN Resolutions calling for the banishment of weapons from outer space.

Likewise, restraints in the use of military weapons in order achieve political, military and legal objectives also prompt the establishment of Rules of Engagement (ROEs) in every military encounter.[199] ROEs provide balance between the realities of armed conflict and political considerations. They establish the circumstances under which the use of force is permissible and when limitations are to be applied on the use of force.[200]

These same considerations should be applied to proposed military activities in space. Limitations upon activities in outer space would foster a compromise between allowing military activities for national defense purposes while following the letter and intent of the law. To do so, it is necessary to finally update the treaty and expand its reach beyond just the establishment of basic principles.[201]

C. REFINEMENTS

1. Groundwork- Currently, no nations have placed weapons in space, there have been no use of force in space and

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[199] UNITED STATES AIR FORCE JUDGE ADVOCATE GENERAL'S CORP, AIR FORCE OPERATIONS AND THE LAW: A Guide for Air and Space Forces 270 (2002).

[200] *Id* at 269. "[ROE] are guidelines for commanders and their troops to determine when, where, how, why and against whom they may use force".

[201] GOLDBERG, *supra* note 19, at 10. "The aim of the negotiators of this treaty was not to provide in detail for every contingency that might arise … but rather to establish a set of basic principles."

there exist no imminent threat of attack upon space assets.[202] This era of relative stability in space provides an opportunity to lay down the groundwork for temperance in space. This ambitious task can be achieved by picking up where the initial constitutive documents left off. The basic tenets of current space law must be concretely defined in order to establish a stronger regime.

As a practical matter, it is useful to mention that it would be easier to set the stage for preventing space weaponization than to remove what already exists. Because the functions of military activities in space provide benefits to all, it not necessary to terminate them.[203] It would also prove too difficult and impractical to require their dismantling.[204] Therefore, efforts to ensure peace in outer space can and should focus on preventing the introduction of weapons in space.

2. Definitions

In order to prevent the weaponization of space and limit the extent of permissible military activities therein, it is essential that some basic definitions be

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[202] Mikula, supra note 59, at 565.

[203] MENON, *supra* note 10, at 33., See also, JAKOWITSCH, *supra* note 13, at 149 (Military assets contribute to global stability by providing a means to verify arms control measures); Anderson, *supra* note 1 at 22, (furnishing weather, intelligence, and reconnaissance support while GPS technology provides the ability to pinpoint a location, thus aiding in search and rescue operations and minefield clearance).

[204] Mikula, *supra* note 59, at 550.

included in any refinements to the OST. Because space is place of special national security and environmental concerns, the definitions must be tailored so as to take into account the uniqueness of the environment. Definitions should also consider the context in which they are developed. That is, definitions should seek to assuage fears of firepower being wrought down upon the earth from space and preclude the creation of space debris.

a) *SPACE WEAPONS*

A crucial item to define concretely is what constitutes a space weapon. Previous attempts to craft a definition for space weapons were so confusing, self-serving[205] or broad that nearly any object in or interacting with space could be considered a weapon.[206] A workable definition will avoid the pitfalls of attempting to keep pace with technological advances while not specifically naming what components are either forbidden or permissible. Instead, a more manageable approach is to analyze two factors: 1) the effects produced by the components and 2) the uses to which it is put.

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[205] *Id.* at 565.

[206] BHUPENDRA JASANI, *Introduction, in* PEACEFUL AND NON-PEACEFUL USES OF SPACE, 1, 13 (Bhupendra Jasani ed., 1991) "A space weapon is a device stationed in outer space... or in the earth environment designed to destroy, damage, or otherwise interfere with the normal functioning of an object or being in outer space, or a device stationed in outer space designed to destroy, damage, or otherwise interfere with the normal functioning of an object or being in the earth environment. Any other device with the inherent capability to be used as defined above will be considered as a space weapon."

Considering the realities of the space environment, certain consequences should be avoided. Thus guidelines can be instituted on what is permissible in space. A device in outer space that is capable of destroying another object and producing space debris should be outlawed. Additionally, a device capable of projecting deadly or destructive force upon the earth environment should also be forbidden. Consequently, a sample first element of the definition of a space weapon could be:

> *1. Any man-made object, located in or on the Earth, the moon or other celestial bodies, in earth's orbit, the orbit of the moon or any other celestial body or in outer space, that contains a mechanism capable of being deployed in a manner to cause the death of a person or destruction of another man-made object in space or from space on to the Earth, in or on the moon or other celestial bodies, in Earth's orbit, the orbit of the moon or any other celestial body or in outer space. This includes, but is not limited to nuclear, biological, chemical, and conventional weapons.*

The second portion of the weapons analysis should address impermissible uses of otherwise lawful space objects. An approved object that is used in a manner that causes death or destruction may also be considered a weapon. For example, if a communications satellite is placed in orbit and aimed at another object, it may cause destruction even without a "kill" component.[207] Therefore, a possible second element of the definition of a space weapon could read:

> *2. Any application or deployment of a lawful object, in or on the moon or other celestial bodies, in earth's orbit, the orbit of any other celestial body or in outer space, in a manner that unlawfully and intentionally causes the death of a person or destruction of a man-made device in space or from space to Earth is prohibited.*

Limiting the definition of space weapon to those objects with undesirable components and uses in or from space addresses both concerns for self-defense and maintaining the "peaceful purposes" of space. Self-defense concerns are addressed by still allowing for other measures

[207] Ramey, *supra* note 5, at 22.

that ensure the protection of space assets. They avoid contentious uses while not requiring a space object to remain completely vulnerable.

For defensive purposes, a space object may invoke measures that deflect, shield, debilitate, disable, or interrupt the normal functions of an opponent if attacked. They can spray paint, nudge targets off orbits and electronically jam satellites.[208] Additionally, defensive "cyber warfare" may be undertaken to defeat a space contender without affecting innocent systems.[209]

Nevertheless, in view of the Outer Space Treaty's intent to stimulate scientific exploration and commercial exploitation of the space environment, a concession to the definition of "space weapon" is warranted. Scientific and commercial endeavors possibly will require the use of sharp utensils, chemicals and explosives that would generally be prohibited in space under the proposed definition of a weapon. An exception should be carved out of the general definition in order to account for these specific uses. An exemplar could be:

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[208] Ramey, *supra* note 5, at 27 (The Air Force has considered but never developed these types of defensive systems).

[209] Petras, *supra* note 169, at 1259 ("What's more, regardless of whether a satellite is struck by an ASAT weapon (be it a nuclear burst, kinetic weapon or high-energy particle beam) or a computer virus, the effect is the same – crippling of the satellite and/or its function.").

3. The use of items containing chemicals, cutting mechanisms or explosive materials exclusively for advancing commercial or scientific exploration shall not be prohibited.

Allowing for space systems that are able to defend without projecting deadly force onto the earth would allay international fears of being attacked from space. Moreover, the restriction would quell concerns over the possible interruption or destruction of other sovereign's assets. As a result, defining a weapon in this manner would consider the unique environment in which these systems operate and fulfill political and national security concerns.

b. PEACEFUL PURPOSES

Another treaty provision whose interpretation has been heavily debated is the "peaceful purposes" clauses. Rather than perpetuating the problem of conflicting interpretations[210] or avoiding the term completely,[211] a refined treaty should clarify once and for all what military space activities are considered "peaceful".

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[210] *See* Ramey, *supra* note 5 at 81 for the proposition that partners to future space treaties should decide amongst themselves who determines what interpretation should be given.

[211] JASANI, *supra* note 206, at 16 (Proposing that future agreements should individually provide for a clear definition or avoid the use of the term altogether).

A logical approach to achieving this is to adopt the methods of interpretation presented in the Vienna Convention on the Law of Treaties.[212] The Vienna Convention affirms that treaties are to be interpreted in conformance with their ordinary meaning consistent with their context, object and purpose.[213] Examining each of these factors in turn will assist in ascertaining the important elements to be included in a definition of "peaceful purposes".

Webster's Dictionary provides a common definition of "peaceful" as "1: peaceable 2: untroubled by conflict, agitation, or commotion: quiet, tranquil….4: devoid of violence or force."[214] As applied to space, this definition connotes uses and activities that do not create discord amongst user-nations. It also entails abstention from violence or measures employing force against other space assets.

The context of the treaty reveals several matters pertinent to the determination of what is a peaceful purpose. As previously noted, during the development and negotiation of the OST, military assets were already being

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[212] Vienna Convention on the Law of Treaties, May 23, 1969, U.N. Doc A/Conf. 39/27.

[213] *Id.* Section 3, Article 31(1).

[214] WEBSTER'S NEW COLLEGIATE DICTIONARY 842 (1977).

employed in space.[215] Also, seven years prior to the OST, the two major space powers had agreed to achieve complete disarmament, eliminate an arms race, and discontinue the production and testing of nuclear weapons in the atmosphere in the 1963 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water.[216]

Furthermore, the stated goal of the OST was to eliminate earthly conflicts from expanding into the space arena.[217] Its purpose was to preserve space as place of cooperation and exploration[218] with the intent to strengthen friendly relations between and foster mutual understanding amongst nations.[219]

Taken together, the context and aims of the treaty present certain characteristics of what may be a permissible, peaceful use of outer space. It includes civilian and military activities so long as they:

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[215] *See supra* p 4 for an explanation of development of military assets prior to and during the negotiation of the OST; *see supra* pp 5-6 for an explanation of the diplomatic compromises that allowed for the adoption of the OST.

[216] Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space, and Under Water, Aug. 5, 1963, 13 U.S.T. 1313, T.I.A.S. No. 5433, 480 U.N.T.S. 43.

[217] *See* Ambassadors Arthur J. Goldbert's statement to the United Nations concerning the purpose and objectives of the OST, *supra* p 38.

[218] Outer Space Treaty at Preamble.

[219] *Id.*

a) Engage in or advance uses that promote cooperation and exploration;

b) Do not create discord amongst nations;

c) Do not involve the unlawful use of force;

d) Shun aggressive interactions;

e) Do not involve placement of armaments in space.

To be truly effective, a meaning of "peaceful purposes" should also balance national and international security concerns[220] as well as the actual practices of states.[221]

In honoring the above considerations, the treaty language ought to adopt a characterization of "peaceful purposes" that allows no equivocation on the inadmissibility of weapons, as that term is defined above. It should, however, permit other military measures. Thus, a sample definition of "peaceful purposes" could be:

> *Activities either of a civilian or military nature, whose functions contribute to international peace, security or cooperation, or to the exploration and use of space, without employing mechanisms, methods or uses that cause the unlawful death of a person or destruction of another man-made object in or from*

[220] JAKOWITSCH, *supra* note 13, at 155.

[221] *See supra* pp 4-10 & 17-21 for an overview of the types of activities previously and currently conducted in outer space.

outer space, the moon or other celestial bodies, the earth's orbit, or the orbit of any other celestial body.

c. SELF-DEFENSE

An additional treaty modification should directly confront the incorporation the UN Charter and its implications upon the right of self-defense in space. The modification must be as specific as the Antarctic Treaty in its wording in order to close any loopholes through which weapons may be brought. Sample clauses addressing these matters could be:

1. Activities carried out in the exploration and use of outer space including the moon and other celestial bodies, must comply with the Charter of the United Nations. These areas shall be used exclusively for peaceful purposes for the furthering of the Charter's purposes of maintaining international peace and security, international cooperation and the development of friendly relations among nations. Measures, methods or uses that cause the intentional death of a person or destruction of man-made objects in or from space are unlawful and shall be prohibited.

2. The inherent right of self-defense upon an attack is expressly recognized herein. In areas governed by this treaty, however, self-defense measures shall only include actions employed to thwart, deflect or stop an actual or imminent attack. This does not preclude the employment of lawful defensive measures within the earth's atmosphere against the space components of an adversary.

These limitations upon the traditional understanding of UN Charter provisions safeguard space while preserving military uses therein. Applied strictly, however, these restrictions may impede the ability to protect against threats to the Earth. Thus, an exception should be fashioned to permit the deployment of measures for the destruction of natural and other items that may pose a direct threat to the survival of humanity.

3. The employment of measures resulting in the destruction of naturally occurring phenomena or other items that pose a direct threat to the continued existence of the Earth shall not be unlawful.

This exception permits objects such as meteorites or asteroids to be destroyed in defense of earth. In such a case, protecting humanity rather than costly operating space systems take overriding priority. The benefits of survival far outweigh whatever damage man-made space objects will endure. This makes a destructive use of force in space permissible under a necessity & proportionality analysis.

3. Safeguards

Measures to prevent the introduction of weapons in space will only be effective if they address the security related reservations of politicians and generals. Namely, a system must be implemented to ensure that weapons are not secretly orbited without the means for inspection or detection.[222] Verification and cooperation measures should be included in order to meet this concern.

The Treaties banning nuclear weapons are useful instruments for determining what measures are sufficient to address the issue. The Non-Proliferation Treaty provided that disarmament measures had to include methods of verifying compliance with treaty obligations under the

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[222] STAFF OF SENATE COMMITTEE ON FOREIGN RELATIONS, 90TH CONG., REPORT ON THE TREATY ON OUTER SPACE 4 (Comm. Print 1967) (During the process of ratifying the OST, Defense Secretary McNamara and General Earle G. Wheller, Chairman of the Joint Chiefs of Staff expressed these precise concerns).

control of an international agency.[223] It also imposed a duty of good faith in negotiation on measures to cease the nuclear arms race.[224] The Comprehensive Test Ban Treaty[225] went much farther to quell concerns and undertook to establish measures to protect the confidentiality of classified materials to be examined for verification purposes.[226] In addition, it established a regime for international monitoring, consultation, inspection and confidence building.[227]

An expansion of the OST should take all these matters into consideration as well. Participation in cooperative efforts must be tempered by prudence. It is not realistic to give up weapons while remaining completely vulnerable to the covert actions of others. Therefore, the OST can be modified to include a safeguarding provision such as the following:

> *States Parties to the Treaty agree to accept safeguards for the purpose of verifying the*

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[223] Treaty on the Non-Proliferation of Nuclear Weapons, TIAS 6839, 21 U.S.T. 483, 1970 U.S.T. LEXIS 502 at art. III (1970).

[224] *Id* at art. VI.

[225] Comprehensive Test Ban Treaty, UN Document A/50/1027 (1996) [hereinafter CTBT].

[226] Id at art II, para. A(6).

[227] *See supra*, note 225, at art IV, paral A(1).

fulfillment of its obligations under this Treaty.[228] *These safeguards will be set forth in an agreement to be negotiated and concluded with the Committee On the Peaceful Uses of Outer Space. These measures shall apply to civil and military activities and space assets bound for or located anywhere outside the earth's atmosphere. The forthcoming agreement shall contain provisions ensuring compliance with the following principles:*

a) all states undertake to allow inspection of civil and military space objects by a neutral international organization to be established within the agreement;[229]

b) all states shall have a right to request inspection of their space assets at any time;[230]

c) all states shall have a right to request the inspection of another state party's space asset upon a showing of probable cause to believe that the asset contains an unlawful weapon or mechanism;

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[228] Treaty on the Non-Proliferation of Nuclear Weapons, TIAS 6839, 21 U.S.T. 483, 1970 U.S.T. LEXIS 502 at art. III (1970).

[229] CTBT, *supra* note 225 at art. II, para. A (1)(1996).

[230] CTBT, *supra* note 225 at art. IV para. A (4)(1996).

d) the inspecting organization shall have a right to request inspection of space assets at any time;

e) all parties shall refrain from abuses in the right to inspection;[231]

f) all states shall have the obligation to agree to inspection;[232]

g) space objects may be subject to inspection prior to deployment, while employed outside the earth's atmosphere or both;

h) all states shall have a right to request consultation regarding the permissibility of an object or any other matters relating to the placement of an object in the areas provided for in this agreement;

i) Inspectors shall take all necessary measures to protect the confidentiality of any information received during the inspections process;[233]

h) all states shall allow for the monitoring of their space systems[234]

As proposed, the verification principles provide for effective oversight of all space activities. They have the

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[231] *Id* at art. IV, para. A (2) (1996).

[232] CTBT, UN Document A/50/1027 at art. IV,para. A (4) (1996).

[233] *Id* at art. II, para. A (6) (1996).

[234] CTBT, *supra* note 232 at art I, para. A (1) (1996).

foresight to predict possible abuses in the process and take measures to prevent them. They also confront the possibility that states may attempt to circumvent inspections by adding unlawful components once deployed in space. Finally, the principles resolve potential controversies early in the process through consultation.

D) WHY PARTICIPATE: POLICY CONSIDERATIONS

The United States should take the lead in redefining the terms of the Outer Space Treaty. As one of the most prominent space powers, the US can guarantee for itself the ability to shape the future of space. The US can set the stage in a manner that truly maintains that violence will not be applied from or within outer space. Only then will the US secure peace and security in space for itself as well as for the world community.

Taking the leadership role in developing language and standards that prevent weapons from entering space would give the US several advantages. First, it will allow it to establish terms and norms favorable to its position. By explaining the significance of military devices to civilian organizations the US can stress the importance of retaining military uses of space. Advocates for complete non-military involvement in space may then be dispelled.

Next, guiding these efforts demonstrates a willingness to consider the position of other nations. This would begin the process of mitigating the consequences of recent unilateral actions taken against overwhelming world opinion.[235] Smaller countries and alienated allies alike can begin to be appeased if the US is willing to regard their interests in global security.

Finally, the US should ensure the Pandora's box of a weaponized space remains closed. As is currently evidenced, the push to weaponize space is providing a foothold by which to claim the need to counter US space objects and actions.[236] Furthermore, the current administration's expansive read of the anticipatory self defense doctrine could lead other nations to believe that the US will strike them from outer space even without

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[235] *In Quotes: Reaction to Bush Ultimatum,* BBC NEWS, March 18, 2003, *available at* http://news.bbc.co.uk/1/hi/world/middle_east/2859485.stm ("Whether it concerns the necessary disarmament of Iraq or the desirable change of the regime in this country, there is no justification for a unilateral decision to resort to force." – French President Jacque Chirac; My question was and is: does the degree of threat stemming from the Iraqi dictator justify a war that will bring certain death to thousands of innocent men, women and children? My answer was and is: no." – German Chancellor Gerhard Schroeder; "The world has to continue pushing solutions that comply with the letter and spirit of the UN charter, which establishes that the use of force should be the last and exceptional recourse, justified only when other methods have failed." – Mexican President Vicente Fox; "China stands for a peaceful solution of the Iraq issue within the framework of the UN through political means. Every effort should be made to avoid war." – Chinese Prime Minister Wen Jiabao; "Moscow believes there are no grounds for saying that a political-diplomatic solution to the situation in Iraq has no chance, that the 'time for diplomacy is over'." – Foreign Ministry spokesperson, Alexander Yakovenko).

[236] Vladimir Isachenkov, *Russia Boasts Weapon to Battle Star Wars,* Associated Press, Mar. 29, 2004 *available at http://www.washingtonpost.com/wp-dyn/articles/A32837-2004Mar29.html* (Russia claims to have developed a weapons system capable of defeating US plans to develop a missile defense system).

sufficient provocation.[237] The US should not provide space challengers with an inducement by which to justify the development of their own space weapons.[238]

The United States should also seek to avoid the devastation that can be wrought upon military and civilian space systems, earth's orbits and the earth environment from the discharge of weapons. Once force is projected onto a space object, the repercussions of its destruction may be uncontrollable. This inability to control the outcome of an explosion in space would defeat the requirement to respond to provocation in a manner that is proportionate.

E) POLITICAL VIABILITY

Revamping the treaty language so that it embraces military uses but still fosters peaceful interactions can placate political and military officials alike. By defining permissible uses and instruments as above, all parties are assured the US has the ability to respond quickly and decisively in the event of an attack. Dangers may be averted in outer space, while defensive counter-

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[237] President George W. Bush, Graduation Address at the U.S. Military Academy (June 1, 2002), quoted in Patrick McLain, *Settling the Score with Saddam: Resolution 1441 and Parallel Justifications for the Use of Force Against Iraq*, 13 DUKE J. COMP. & INT'L L. 223, n. 16 (2003) ("If we wait for a threat to fully materialize, we will have waited too long.").

[238] Schachter, *supra* note 107, at 1634 (explaining that states who perceive a danger of attack will take defensive measures).

attacks may be carried out where they always have been - on earth.

Furthermore, redefining treaty terms so as to preclude any weapons in space would release funds earmarked for untested experimental space technology.[239] These actions would directly address the concerns of those who question the legitimacy and necessity of these types of expenditures.[240] Once released, the moneys earmarked for shields and other intergalactic equipment can be utilized for contending with today's more real and immediate threats.[241] The USA can then focus its efforts and money on projects that will further assist in eradicating the current terrorist threat.[242]

The verification measures involve the international community and foster cooperation and mutual trust. It also ensures that no state party is blind-sided by a surreptitious placement of unlawful items in space.

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[239] Jim Wolf, *Retired Brass Urge Delay in Antimissile Shield*, Reuters, Mar. 26, 2004 *available at http://www.reuters.com/newsArticle.jhtml?storyID=4669840* (Retired Admiral William Crowe, former Chairman of the Joint Chiefs of Staff, characterized the proposed space technology as untested complex technology that makes poor use of scarce resources).

[240] *Id.* (The anti missile shield alone is projected to cost approximately $53 billion dollars).

[241] Wolf, *supra* note 239 (Should an ABM be launched against the US, it already has the ability to identify the source of the missile and counter-attack. It is perceived as unlikely that any state would attack the US and risk "annihilation from a devastating U.S. retaliatory strike.").

[242] *Id.* (The military budget would be better spent protecting open ports and borders against terrorist attacks).

Together, these actions may successfully restore political capital to US diplomatic coffers.

F) Enduring

Although the US may draw benefits from advocating against the weaponization of space, history demonstrates that it may simply withdraw from this regime when it is no longer convenient.[243] In spite of recent unilateral actions, the world's remaining superpower cannot afford to stand alone in opposition to the rest of planet. The United States is always dependent upon other nations to support or at least not hinder its actions.[244] Even when its activities have met with substantial international opposition, it has relied on other countries to sustain its endeavors.[245]

Many nations are extremely dissatisfied with US military endeavors[246] and continue to decry the US involvement in the Iraq. Even those nations who began as

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[243] *See* Manuel Perez-Rivas, *U.S. Quits ABM Treaty*, CNN.com/Inside Politics, December 14, 2001 *available at* http://www.cnn.com/2001/ALLPOLITICS/12/13/rec.bush.abm.

[244] INGER OSTERDAHL, THREAT TO THE PEACE: THE INTERPRETATION BY THE SECURITY COUNCIL OF ARTICLE 39 OF THE UN CHARTER 102 (1998).

[245] THE WHITE HOUSE, *Who are the Current Coalition Members, available at* http://www.whitehouse.gov/infocus/iraq/news/20030327-10.html (Forty nine countries are coalition members in the War in Iraq, including England, Spain, Colombia, Japan Rwanda and Tonga). *See also* MINISTRY OF FOREIGN AFFAIRS OF THE PEOPLE'S REPUBLIC OF CHINA, *President Jian Zemin had Phone Conversation with Russian President Putin and US President Bush Upon Request, Dec 14, 2001,available at* http://www.fmprc.gov.cn/eng/wjb/zzjg/dozys/gjlb/3220/3222/t16768.htm (US withdrawal from ABM treaty not condemned by China).

[246] *See* BBC NEWS, *supra* note 235.

supporters of US actions now view their affiliation with the US as endangering their national interests.[247] According to Osterdahl, the continued dominance of the UN Security Council by the US may have "devastating consequences for the legitimacy of its action and for the respect granted its decisions by the rest of the members of the UN."[248]

The fact that the US and other space powers have the resources to manufacture space weapons, places the singular responsibility on them to prevent their proliferation. The US cannot afford to single-handedly ignore the determination of other nations. Withdrawing from a revised Outer Space Treaty would only serve to imperil its world leadership role.[249]

VI. CONCLUSION

Aside from being legally viable, the proposed refinements to the OST are also politically feasible and desirable. Each change conforms to US legal norms, international law and established precedent. It is

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[247] *Spain Leads Troop Withdrawal from Iraq*, USA TODAY, April 19, 2004, *available at* http://www.usatoday.com/news/world/iraq/2004-04-19-spain-troops_x.htm (Spain announced its intent to withdraw troops from Iraq. Hours later, Honduras also announced that it would withdraw).

[248] OSTERDAHL, *supra* note 127, at 101.

[249] *Cf.* Roberts, *supra* note 133, at 486 (explaining in relation to the use of nuclear weapons that the US must use its power in ways that are just and legal, otherwise, the consequences are "weakened cooperation, the de-legitimization of US leadership and current international nonproliferation regimes could collapse").

particularly suitable to commercial, scientific and military activities.

The proposed modifications do not purport to fundamentally change what is already occurring in space. They merely intend to emphasize the rationale for retaining the status quo. Essentially, the recommendations are legally palatable because they neither require further action to tear anything down, nor to build anything up. Finally, the proposals herein are in keeping with current accepted interpretations of OST provisions.[250]

The proposed definition of a space weapon finally clarifies what type of instrumentality should be banned from outer space while incorporating the letter and spirit of current international law. The prohibition against nuclear weapons remains and is subsequently extended to areas previously not considered in the OST.[251] Also, the proposed language attempts to incorporate other types of weapons, known and unknown, by referring to their components as well as their uses. It does not, however, stipulate that a space apparatus must remain unprotected.[252]

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[250] *See supra* pp 5-7.

[251] Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, U.N. GAOR, 21st Sess., Supp. No. 16, at U.N. Doc A/6316 (1967) (The OST only limits the placement of nuclear weapons in orbit around the earth, on celestial bodies or in outer space).

The new definition provides for exploration, commercial exploitation and cooperation. At the same time, it preserves space for activities that do not jeopardize the national security interests of other countries. It also continues to incorporate the principles of self-defense without precipitating an arms race in outer space.

Furthermore, the proposed definition also recognizes US interests as stated in NASA provisions regarding the peaceful purposes of outer space. In addition, because earth-based weapons are not prohibited from defending space assets, it does not eliminate defensive monitoring systems or military information operations in space.

Finally, proscribing weapons in an area in order to guarantee peace is not without precedent. As explained above, this type of restriction already exists on earth in accordance with the Antarctic Treaty.[253] Its provisions parallel the OST in that it says Antarctica shall be used for peaceful purposes while prohibiting "measures of a military nature" such as establishing bases, conducting maneuvers and testing weapons.[254] It does not, however, prohibit military personnel and equipment.[255]

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[252] *See infra* p 46 for a discussion on the legality of they proposed limitations on self-defense.
[253] The Antarctic Treaty, Dec.1, 1959, 402 U.N.T.S 71.

[254] *Id* at art. I, para. 1.

This language in the Antarctic Treaty unquestionably creates a demilitarized zone in the area.[256] Although it is argued that this language exists for the Antarctic because it is devoid of any military advantage,[257] its exclusion from space works a disadvantage by creating a source of conflict amongst nations. A concerted effort to prevent the weaponization of space and truly produce an area reserved for peaceful purposes should also adopt such clear terminology.

The proposed definition of peaceful purposes would at last end the debate on its meaning in a manner that strikes a compromise between the competing interpretations. It would also square treaty language with the original intent of the OST negotiators. Finally, it creates a conflict free zone and allows less developed nations to dedicate precious resources to pressing internal matters rather than the development of objects to defend against a possible future US threat from outer space.

Although some persons will balk at placing restrictions upon the ability to defend the US from outer space, the precedent for it already exists. More

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[255] *See supra* note 253, at art. I, para. 2.

[256] Ramey, *supra* note 5, at 107.

[257] Ramey, *supra* note 5, at 108.

importantly, the notion of mutual vulnerability has worked where applied. There is also established precedent for the understanding that such restrictions are consistent with the UN charter, but only to the extent they coincide with peaceful purposes.[258] The idea of restricting weapons in space but not prohibiting other methods to defend assets and personnel in space is a sound compromise that resists the placement of a permanent threat in the area.

It is far too dangerous to allow the deployment of strike-capable assets in space for two reasons: 1) world reaction and 2) unpredictable outcome. Notwithstanding, the OST language must be viewed in light of UN Charter provisions allowing for self-defense. A strike in space would be patently illegal. However, space assets would be allowed to exercise their inherent right to self-defense through "peaceful" methods, while earth-bound weaponry could be used to strike against the instigator of the attack from where it originated.

Finally, no treaty revisions would be acceptable without ways to verify that all parties are in compliance with the provisions. Thus, means of verification and monitoring must be instituted to reduce any fears of

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[258] The Antarctic Treaty, Dec.1, 1959, 12 U.S.T. 794, T.I.A.S. 4780, 402 U.N.T.S 71 402 U.N.T.S 71.T at art. X.

getting blind-sided by an adversary. Transparency in the process of vetting the space projects of all nations is essential to establishing a lasting confidence and cooperation amongst the global community.

Only by amending the current space treaty to institute these or similar measures can the world rest assured that space will be reserved for truly peaceful endeavors. Existing treaty provisions reflect the rush to establish an initial legal regime for controlling newly emerging activities in space.[259] They also reflect an attempt to achieve consensus on the most pressing issues of the Cold War: nuclear weapons. Since then, the world has grown and technological capabilities have expanded and become ever more lethal.

The original Outer Space Treaty was never intend to foresee all possible issues that may arise in this new environment. It is time to begin the process of catching up. It is time to undertake the first revision of the Outer Space Treaty.

I look forward to a future in which our country will match its military strength with our moral restraint, its wealth with our wisdom, its power with our purpose.

John F. Kennedy

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[259] BENKO ET AL, supra note 96, at 163 ("The political reality at the time was, as it is at present, that sovereign States desired to maintain by all means their influence on Earth as well as in the rest of space.").