

THE IMPACT OF INTERNATIONAL LAW AND TREATY OBLIGATIONS ON UNITED STATES MILITARY ACTIVITIES IN SPACE

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INTRODUCTION

The recognized benefits of conducting certain kinds of military operations from space have led to the development and deployment of space-based platforms for a variety of military functions. These platforms are designed to perform functions commonly grouped under the military missions of "force enhancement" and "space support" which include such functions as strategic and tactical communications, navigation, strategic surveillance, weather observations, and associated launch and support activities. The development of threats to those platforms, coupled with the difficulty of maintaining assured access to space, have generated concern for the future direction of the U.S. military space program.

Supported by the development of advanced space-related technologies for strategic defense, this concern has led to the consideration of potential combat missions in space, termed "force application" and "space control." Additional impetus behind these two missions has been received from the Strategic Defense Initiative (SDI) program, the 1987 Department of Defense space policy, and the National Space Policy promulgated in early 1988.

The decision to pursue still more active measures in space to protect American national interests will be based on a wide range of factors, including U.S. obligations under international law, treaties and

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agreements. It will also be shaped by the differing perspectives within American society of how U.S. military space operations should be characterized. While the U.S. has identified national interests with respect to space, vital national interests in space do not yet exist. Therefore, weapons in space may not be deployed until the need to protect vital interests there actually exists. While current military space programs are being conducted consistent with treaty obligations, the future will raise conflicts between military operations involving more active defensive measures in space and existing or future international law.

In view of both growing Soviet military capabilities and the lengthy period of time required to develop and deploy space systems, conflicts between U.S. national interests and its legal obligations will have to be resolved in the near future. Several potential courses of action may result: (1) the U.S. may continue to adhere to its legal obligations at the expense of deploying space-based weapons; (2) the U.S. may elect to withdraw from certain treaties or agreements on the ground that its supreme national interests are jeopardized; or (3) it may consider renegotiation of portions of those agreements to allow limited numbers and types of space-based weapon and support systems.

This article focuses on the necessity of the U.S. national security community to address the achievement of U.S. objectives for military space operations insofar as that achievement is affected by treaties and other international agreements with which the U.S. complies. The first part of this article identifies the range of existing treaties and international agreements bearing on military space operations. It then addresses existing national space policy, specifically focusing on Department of Defense (DoD) space policy. Part two examines the interaction of policy and law within the context of the following issues:

- the legal boundaries of space, including liability for damage caused by space objects;
- the right of self-defense, including the principles of necessity and proportionality;
- the effect of armed conflict upon treaties;
- noninterference and inspection;
- Antiballistic Missile (ABM) Treaty constraints on SDI programs; and
- the antisatellite (ASAT) test ban.

The latter two issues are inextricably linked to U.S. military space objectives insofar as their outcomes will contribute to determining whether combat-related capabilities will be acquired and deployed.

Finally, this article will conclude that U.S. military space operations face a critical juncture between "technology-push" and legal constraints. New technologies can outrace the parallel development of legal

structures and concepts to deal with them, while law can inhibit exploitation of military opportunities. This problem exists in both cases because technical and legal considerations may conflict with overriding national objectives. Because of the long lead times required for both space system development and international space law, a framework for adjudicating the proper balance between law and technology within the larger context of U.S. interests is needed.

Tables 1 through 4¹ provide a list of activities prohibited and/or constrained by international law and their impact on each of the four military missions described in the DoD Military Space Policy and National Space Policy directives. The citations for the list of activities are provided in Appendices A, B, and C. Appendix A provides a list of activities in space which are prohibited and/or constrained by international law. Appendix B provides a list of treaties specifically impacting space operations. Appendix C lists treaties potentially impacting space operations. There may be additional treaties, UN resolutions, or customary international law not included here which may affect U.S. military space operations should U.S. national security objectives and policy for space change for domestic reasons.²

I. BACKGROUND: EXISTING SPACE TREATIES AND INTERNATIONAL AGREEMENTS

Before examining the issues identified above, a general explanation of the nature of international law, customary international law, and space law is required. The United States is a party to a number of treaties and international agreements which either: (1) directly pertain to man's activities in space; (2) are relevant insofar as the activity constrained, banned, or affected is also applicable to the space environment;³ or (3) may potentially affect U.S. space operations.⁴ The best-known example of the first type of treaty is the Outer Space Treaty;⁵

1. See Appendix E. These tables represent this author's interpretation of the relevant treaties and international law.

2. A notable example is the *Agreement Governing the Activities of States on the Moon and Other Celestial Bodies*, G.A. Res. 34/68, 34 UN GAOR Supp. (No. 46) at 77, UN Doc. A/34/46 (1979), adopted by the UN General Assembly on December 5, 1979, but never signed or ratified by the U.S. Legally, the Moon agreement entered into force thirty days following the date of deposit of the fifth instrument of ratification (Article 19), and so is a part of international law. The duration of the Agreement was not stated; however, ten years after its entry into force the question of its review will be included in the provisional agenda of the UN General Assembly to consider revision.

3. See Appendix B.

4. See Appendix C.

5. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, *opened for signature* January 27, 1967, 18 U.S.T. 2410, T.I.A.S. No. 6347, 610 U.N.T.S. 205 [hereinafter Outer

others include the Convention on the International Liability for Damage Caused by Space Objects⁶ and the Convention on Registration of Objects Launched into Outer Space.⁷ Examples of the second type of agreement include the ABM Treaty⁸ and the Limited Test Ban Treaty.⁹ Finally, the Biological Weapons Convention¹⁰ and the establishment of the direct communications link ("hot line") between the U.S. and the Soviet Union¹¹ illustrate the third category of agreement.

U.S. legal obligations should be analyzed within the context of international space law development as well as specific space-related treaties which the U.S. has signed. A selected number of these treaties as well as U.S. national and military space policies will be examined below with a focus on development of the operational context in which to explore the issues in the second part of this article.

The Vienna Convention on the Law of Treaties¹² defines the term "treaty" as an international agreement "governed by international law, whether embodied in a single instrument or in two or more related instruments and whatever its particular designation."¹³ In U.S. usage,

Space Treaty].

6. Mar. 29, 1972, 24 U.S.T. 2389, T.I.A.S. No. 7762, 960 U.N.T.S. 187 [hereinafter Space Liability Convention].

7. Jan. 14, 1975, 28 U.S.T. 695, T.I.A.S. No. 8480, 1023 U.N.T.S. 15 [hereinafter Space Object Registration Convention].

8. Treaty on the Limitation of Anti-Ballistic Missile Systems, May 26, 1972, 23 U.S.T. 3435, T.I.A.S. No. 7503 [hereinafter ABM Treaty]. See also Treaty on the Limitation of Anti-Ballistic Missile Systems, July 3, 1974, Protocol, 27 U.S.T. 1645, T.I.A.S. No. 8276.

9. Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Underwater, *opened for signature* Aug. 5, 1963, United States -- USSR -- United Kingdom, 14 U.S.T. 1313, T.I.A.S. No. 5433, 480 U.N.T.S. 43 [hereinafter Limited Test Ban Treaty]. Other nuclear test ban treaties which will affect military space operations include the Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Underground Nuclear Weapon Tests (known as the Threshold Test Ban Treaty [TTBT]) and the Treaty Between the United States of America and the Union of Soviet Socialist Republics on Underground Nuclear Explosions for Peaceful Purposes (known as the Peaceful Nuclear Explosions [PNE] Treaty). However, although signed in 1974 and 1976, respectively, neither has yet been ratified by the U.S. Senate and therefore both are not in force.

10. Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction, *opened for signature* May 18, 1977, 26 U.S.T. 583; T.I.A.S. No. 8062.

11. Memorandum of Understanding Regarding the Establishment of a Direct Communications Link, with Annex, June 20, 1963, 14 U.S.T. 825; T.I.A.S. 5362. See also the subsequent agreements to improve the direct communications link in 1971 (Sept. 30, 1971, 26 U.S.T. 564; T.I.A.S. No. 7187) and 1975 (Mar. 20 - Apr. 29, 1975, 26 U.S.T. 564, T.I.A.S. No. 8059).

12. The United States has not ratified the Vienna Convention on the Law of Treaties. Nevertheless, the Vienna Convention binds the U.S. because it is an indication of customary international law.

13. Vienna Convention on the Law of Treaties, *opened for signature* May 23, 1969, 1155 U.N.T.S. 331.

"treaty" denotes international (bilateral and multilateral) agreements made by the President with the advice and consent of the Senate in accordance with the U.S. Constitution.¹⁴ But just what treaty and legal obligations does the U.S. have with respect to space operations?

Space law is still in its infancy, and so existing treaties pertaining to legal regimes in space reflect terrestrial analogues.¹⁵ For example, principles of the Outer Space Treaty¹⁶ mirror principles inherent in maritime law and embodied in the Antarctic Treaty.¹⁷ However, not all applications of terrestrial legal regimes to space are operationally valid or useful, nor do they necessarily provide legal solutions to complex problems. For example, the strict application of the principle of national sovereignty over territorial airspace would result in projections of national sovereignty upward into infinity.¹⁸ While some equatorial states have used this principle to claim segments of geostationary orbit as sovereign territory and national resources, most states have rejected these claims.¹⁹

An important corresponding consideration is the development of enforcement mechanisms for space law. Currently no such mechanisms exist, as the United Nations cannot draw upon its members, excluding the very few space-faring nations, to organize a "Peacekeeping Force" for space. Thus, technological capabilities and limitations determine the reality behind the enforcement mechanisms of international space law, at least for the present time.

In addition to treaties, the United States follows "customary international law" and United Nations resolutions. Customary international law comprises states' customs and practices which have evolved through time and are considered to be binding as treaties. One example is the law of armed conflict, which regulates the conduct of armed hostilities. In contrast, United Nations resolutions do not impose binding legal obligations upon states, but they do represent a broad consensus among UN

14. See U.S. CONST. art. II, § 2. See also U.S. DEPARTMENT OF STATE, OFFICE OF THE LEGAL ADVISER, TREATIES IN FORCE: A LIST OF TREATIES AND OTHER INTERNATIONAL AGREEMENTS OF THE UNITED STATES IN FORCE ON JANUARY 1, 1986 (U.S. Government Printing Office, 1986), at iii.

15. News Release, United States Air Force, "Remarks by Major General Walter D. Reed, the Judge Advocate General, United States Air Force, to the American Astronautical Society," October 31, 1978, at 9.

16. Outer Space Treaty, *supra* note 5.

17. Antarctic Treaty, December 1, 1959, 12 U.S.T. 794, T.I.A.S. No. 4780, 402 U.N.T.S. 71.

18. Outer Space Treaty, *supra* note 5.

19. See Gorbil, *The Legal Status of Geostationary Orbit: Some Remarks*, 6 J. OF SPACE LAW 172-175 (1978); *Current Documents: The Bogota Declaration*, 6 J. OF SPACE LAW 193 (1978).

member states. Thus, they could potentially inhibit an individual state's behavior by triggering unattractive political consequences. They may also become the foundation for future international law if UN members attempt to codify those resolutions into treaties.

Treaties and other international agreements are as binding on the United States as its domestic law once they are ratified by the U.S. Senate.²⁰ In order to ensure that all Department of Defense programs are in compliance with U.S. agreements, specifically those relating to arms control, the Under Secretary of Defense for Acquisition (USD(A)) is charged with compliance oversight responsibilities. The Service Secretaries, Chairman of the Joint Chiefs of Staff, and Agency Directors are responsible for the internal compliance of their respective organizations. The DoD General Counsel provides advice and assistance regarding compliance implementation and questions of interpretation.²¹ Questions of interpretation are resolved by the USD(A) on a case-by-case basis.²²

One of the fundamental principles of international law is that if an act is not specifically prohibited, that act is permitted.²³ While the list of prohibited activities in space is sizeable, there are very few legal restrictions on the non-aggressive military use of space. This allows the functions of surveillance, reconnaissance, weather monitoring, and navigation to be performed.²⁴ Since these functions fall under the scope of the broader function of "force enhancement" described in the DoD military space policy and have long been accepted within the international community as "non-aggressive" uses of space, they pose no apparent

20. U.S. CONST. art. VI, § 2 states:

This Constitution, and the Laws of the United States which shall be made in Pursuance thereof; and all Treaties made, or which shall be made, under the Authority of the United States, shall be the supreme Law of the Land; and the Judges in every State shall be bound thereby, any Thing in the Constitution or Laws of any State to the Contrary notwithstanding.

21. These responsibilities are assigned by Department of Defense Directive 5100.70, *Implementation of SAL Agreements*, dated 9 January 1973. The compliance process was an outgrowth of the SALT I Agreement but applies to all agreements. Strategic Defense Initiative Organization, *Report to Congress on the Strategic Defense Initiative*, (June 1986) [hereinafter SDIO Report 1986], at C-4.

22. "No project or program which reasonably raises an issue as to compliance can enter into the testing, prototype construction, or deployment phases without prior clearance from the USD(A). If such a compliance issue is in doubt, USD(A) approval shall be sought. In consultation with the DoD General Counsel, OASD/International Security Policy and OJCS, the USD(A) applies the provisions of the agreements, as appropriate. Military departments and DoD agencies, including SDIO, certify internal compliance quarterly and establish internal procedures and offices to monitor and ensure internal compliance . . ." Strategic Defense Initiative Organization, *Report to the Congress on the Strategic Defense Initiative*, (April 1987) [hereinafter SDIO Report 1987], at D-4.

23. USAF Air Command and Staff College, *AU-18: Space Handbook*, at 15-4 (January 1985).

24. *Id.*

conflict with international law in peacetime. International law also does not restrict the deployment of military space stations; the testing and deployment in Earth orbit of non-nuclear, non-anti-ballistic missile weapon systems; individual and collective self-defense; or any other conceivable activity that is not otherwise restrained or banned.²⁵

Existing U.S. treaty obligations of interest to military space operations fall into three categories of application: (1) those where space, and the governing of operations in space, are the primary focus of the Treaty; (2) those where space is one of four environments (the others being land, sea, and air) in which a certain activity or set of activities are restricted, constrained, or banned;²⁶ and (3) those agreements and customs which may potentially affect U.S. military space operations.²⁷

Examples of the first type of treaty include the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (commonly referred to as the Outer Space Treaty);²⁸ Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space;²⁹ Convention on the International Liability for Damage Caused by Space Objects;³⁰ Convention on Registration of Objects Launched into Outer Space;³¹ and a number of telecommunications conventions.³² Treaties and conventions falling within the second category include the ABM Treaty,³³ the Limited Test Ban Treaty;³⁴ and the Environmental Modification Convention.³⁵ The third category includes conventions regulating the laws and customs of war;³⁶ prohibitions on the

25. *Id.*

26. See Appendix A.

27. See Appendix B.

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

29. April 22, 1967, 19 U.S.T. 7570, T.I.A.S. No. 6599, 672 U.N.T.S. 119 [hereinafter Astronaut Rescue Agreement].

30. Space Liability Convention, *supra* note 6.

31. Space Object Registration Convention, *supra* note 7.

32. International Telecommunication Convention, Oct. 25, 1973, 28 U.S.T. 2495, T.I.A.S. No. 8572; International Telecommunications Satellite Organization (INTELSAT), Aug. 20, 1971, 23 U.S.T. 3813, T.I.A.S. No. 7532; Partial Revision of Radio Regulations Final Protocol: Space Telecommunications, July 17, 1971, 23 U.S.T. 1527, T.I.A.S. No. 7435.

33. ABM Treaty, *supra* note 8.

34. Limited Test Ban Treaty, *supra* note 9.

35. Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, 31 U.S.T. 333, T.I.A.S. No. 9614 [hereinafter Environmental Modification Prohibition].

36. Convention Respecting the Laws and Customs of War on Land, Oct. 18, 1907, 36 Stat. 2277, T.S. No. 539; Convention Relative to the Opening of Hostilities, Oct. 18, 1907, 36 Stat. 2259, T.S. No. 538; Convention with Respect to the Laws and Customs of War on Land, July 29, 1899, 32 Stat. 1803, T.S. No. 403.

use of biochemical warfare;³⁷ and measures to reduce the risk of nuclear war between the United States and the Soviet Union.³⁸ Selected treaties and conventions are briefly discussed below.

A. Outer Space Treaty

This Treaty provides the foundation for most, if not all, treaties affecting man's activities in space. It should be viewed in the context of Western "non-armament" efforts in the late 1950s and early 1960s to prevent the potentially damaging exploitation of certain geographical regions such as Antarctica. The principles expressed in the Outer Space Treaty stem from those in the Antarctic Treaty of 1959;³⁹ the peaceful exploration and use of outer space;⁴⁰ the ban on asserting new claims of national sovereignty;⁴¹ and the prohibition of military bases, weapons testing, and military maneuvers in outer space.

The Outer Space Treaty bans the placement in orbit, or installation on celestial bodies, of "objects carrying nuclear weapons or any other kinds of weapons of mass destruction."⁴² Parties to the Treaty agree to conduct scientific and exploration activities so as to avoid harmful contamination of space and adverse changes in the Earth's environment.⁴³ The principle of international cooperation is especially important. To this end, the parties agree to consider requests by other parties to

37. Bacteriological (Biological) and Toxin Weapons, Apr. 10, 1972, 26 U.S.T. 583, T.I.A.S. No. 8062; Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare, *opened for signature* June 17, 1925, 26 U.S.T. 571, T.I.A.S. No. 8061.

38. Memorandum of Understanding Regarding the Establishment of a Standing Consultative Commission, Dec. 21, 1972, 24 U.S.T. 238, T.I.A.S. 7545; Agreement on Measures to Improve the Direct Communications Link, Sept. 30, 1971, 22 U.S.T. 1598, T.I.A.S. No. 7187, *as amended*, Mar. 20-Apr. 29, 1975, 26 U.S.T. 564, T.I.A.S. 8059; Agreement on the Prevention of Nuclear War, June 22, 1973, 24 U.S.T. 564, T.I.A.S. 7654; Memorandum of Understanding Regarding the Establishment of a Direct Communications Link, June 20, 1963, 14 U.S.T. 825, T.I.A.S. 5362.

39. Antarctic Treaty, *supra* note 17.

40. Compare *id.* art. I with Outer Space Treaty, *supra* note 5, art. I.

41. Compare Antarctic Treaty, *supra* note 17, art. IV, § 2, with Outer Space Treaty, *supra* note 5, art. II. States do, however, retain national jurisdiction and control over their own registered objects and personnel while in space or on celestial bodies. *Id.* art. VIII.

Ownership of objects launched into outer space, including objects landed or constructed on a celestial body, and of their component parts, is not affected by their presence in outer space or on a celestial body or by their return to the Earth. Such objects or component parts found beyond the limits of the State Party to the Treaty on whose registry they are carried shall be returned to that State Party, which shall, upon request, furnish identifying data prior to their return.

Id. art. IV.

42. Outer Space Treaty, *supra* note 5, art. VIII.

43. *Id.* art. IX.

observe the flight of space objects,⁴⁴ to release information about their activities in outer space "to the greatest extent feasible and practicable,"⁴⁵ and to honor requests for visiting space installations on the basis of reciprocity.⁴⁶

The Treaty was signed in Washington, London, and Moscow on January 27, 1967; ratified by the United States on May 24, 1967; and entered into force on October 10, 1967. Amendments may be proposed at any time by signatories to the Treaty.⁴⁷ Any State Party may withdraw from the Treaty upon one year's written notice.⁴⁸

B. Astronaut Rescue Agreement

The Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space is an expansion of Articles V and VIII of the Outer Space Treaty.⁴⁹ The Treaty was signed at Washington, London, and Moscow on April 22, 1968; ratified by the United States on October 18, 1968; and entered into force on December 3, 1968. The Treaty primarily focuses on the rendering of assistance to astronauts in distress. It also encompasses the recovery and return of space objects and components to the "launching authority," defined in Article VI as the State or international organization responsible for launching that spacecraft.⁵⁰

44. *Id.* art. X.

45. *Id.* art. XI.

46. *Id.* art. XII.

47. *Id.* art. XV.

48. *Id.* art. XVI.

49. *See* Outer Space Treaty, *supra* note 5, art. V.

States Parties to the Treaty shall regard astronauts as envoys of mankind in outer space and shall render to them all possible assistance in the event of accident, distress, or emergency landing on the territory of another State Party or on the high seas. When astronauts make such a landing, they shall be safely and promptly returned to the State of registry of their space vehicle.

In carrying on activities in outer space and on celestial bodies, the astronauts of one State Party shall render all possible assistance to the astronauts of other States Parties.

States Parties to the Treaty shall immediately inform the other States Parties to the Treaty or the Secretary-General of the United Nations of any phenomena they discover in outer space, including the moon and other celestial bodies, which could constitute a danger to the life or health of astronauts.

Id.

50. The atmospheric reentry of Cosmos 954 (a Soviet nuclear-powered ocean surveillance satellite) and the landing of its debris on Canada on January 24, 1978 illustrates the applicability of both the Astronaut Rescue Agreement and the Space Liability Convention. Under Article II of the Space Liability Convention, the Soviet Union, as the launching state, was liable to Canada for compensation for damages caused by the impact of Cosmos 954 on Canadian soil. It was also liable for the costs incurred in restoring Canadian territory "to the condition which would have existed if the damage had not occurred" (Article XII). Article V, paragraphs 2 and 5, of the Astronaut Rescue Agreement mandated Soviet liability for costs for search and recovery operations, which

C. Space Liability Convention

The Convention on International Liability for Damage Caused by Space Objects was signed at Washington, London, and Moscow on March 29, 1972; ratified by the United States on May 18, 1973; and entered into force for the U.S. on October 9, 1973. Like the Astronaut Rescue Agreement, the Space Liability Convention is an extension of the Outer Space Treaty with respect to damage liability.⁵¹ It assigns responsibility to the launching state(s) for damage to another state caused by its space object and establishes procedures for presentation of claims for compensation.

D. Convention on the Registration of Space Objects

The Convention on the Registration of Objects Launched into Outer Space was opened for signature at the United Nations on January 14, 1975. It was ratified by the United States on July 24, 1976, and entered into force on September 15, 1976. Acknowledging the principles enunciated in the three treaties discussed above, this convention establishes a central Register of space objects that is maintained by the Secretary General of the United Nations. Article IV states that each launching state shall, "as soon as practicable," furnish information on: (1) the name of the launching state(s); (2) the space object designator or its registration number; (3) the date and territory or location of launch; (4) orbital parameters, including nodal period, inclination, apogee, and perigee; and (5) the general function of the space object.⁵² In addition, each

were estimated to be \$12 million. See Edward K. Finch, Jr. and Amanda Lee Moore, *The Cosmos 954 Incident and International Space Law*, AMERICAN BAR ASSOCIATION JOURNAL, January 1979, at 56-57 (1979).

The Soviet Union, as a signatory of this Convention, was obligated under Article V to notify the UN Secretary General "to the greatest extent feasible and as soon as practicable" that Cosmos 954, was no longer in orbit. See *supra* note 5, art. IV. Cosmos 954 carried a nuclear reactor as a power source. However, by the terms of Article IV, signatory states are not obligated to notify the United Nations of the existence of hazardous materials aboard objects launched into space.

Cosmos 954 stimulated efforts to create more stringent notification requirements, including notification at each of the following four stages in the life of a spacecraft:

1. launch;
2. the point of orbital decay when a reasonable possibility exists that the object may reenter the atmosphere;
3. the point immediately prior to impact when it is possible to predict reentry time and impact location;
4. after impact.

The notification requirements would impinge on sensitive national security issues. To this date, the convention has not been modified to reflect these changes.

51. See Outer Space Treaty, art. VII, *supra* note 5, art. VII.

52. Space Object Registration Convention, *supra* note 7, art. IV.

state is required to notify the UN Secretary General, "to the greatest extent feasible and as soon as practicable," of space objects no longer in orbit.⁵³

E. Antiballistic Missile Treaty

The Antiballistic Missile (ABM) Treaty was adopted by the U.S. in 1972 as part of the Strategic Arms Limitation Talks I (SALT I).⁵⁴ At the time the Treaty was entered into, it was believed that existing ballistic missile defenses could easily be overcome by significantly cheaper offensive systems. Consequently, the deployment of relatively ineffective ABM systems might instigate a proliferation of offensive nuclear forces. Conversely, it was felt that agreed limitations on ABM systems might enhance the prospects for real reductions in, and constraints on, offensive systems. Therefore, the negotiation of stringent limitations on ABM systems was perceived to be a first step to facilitate comparable constraints on strategic offensive nuclear weapons.⁵⁵ These objectives of the Treaty are frequently forgotten. It is also often forgotten that the Treaty was negotiated concurrently with and adopted the same day as the "Interim Agreement Between the USA and the USSR on Certain Measures with Respect to the Limitation of Strategic Offensive Arms," usually referred to as the SALT I Agreement.⁵⁶

The Treaty is comprised of sixteen articles and a number of Agreed Statements, Common Understandings, and Unilateral Statements. It was signed in Moscow on May 26, 1972, ratified by the U.S. Senate on August 3, 1972, and entered into force on October 3, 1972. The Treaty is of unlimited duration, although there are provisions for treaty review every five years and for withdrawal with six months notice if "extraordinary events" have jeopardized the national interests of one or both of the signatory parties.⁵⁷

Except for the two ABM systems allowed by the Treaty, the articles provide that "each party undertakes not to develop, test, or deploy new ABM systems or components which are sea-based, air-based, space-based, or mobile land-based."⁵⁸ Systems are defined as "a system to

53. *Id.* art. V.

54. USSR - Missile Limitation, May 26, 1972, United States - USSR, 23 U.S.T. 3435, T.I.A.S. No. 7503.

55. P.H. NITZE, SDI AND THE ABM TREATY (Department of State, Bureau of Public Affairs, Current Policy No. 711, June 1985) at 1.

56. Interim Agreement Between the United States of America and the Union of Soviet Socialist Republics on Certain Measures with Respect to the Limitation of Strategic Offensive Arms, United States - USSR, May 26, 1972, 23 U.S.T. 3462, T.I.A.S. No. 7504 (hereinafter SALT I Treaty).

57. ABM Treaty, art. XV, *supra* note 8.

58. *Id.* art. V(1).

counter strategic ballistic missiles or their elements in flight trajectory." "Components" are ABM interceptor missiles, launchers, and radars.⁵⁹ The ABM Treaty limits testing of systems and components "in an ABM mode," i.e., against strategic ballistic missiles or their elements in flight trajectory. The Treaty also prohibits non-ABM component testing "in an ABM mode."⁶⁰

Agreed Statement D which accompanies the Treaty provides that:

[I]n order to insure fulfillment of the obligation not to deploy ABM systems and their components except as provided in Article III of the Treaty, the Parties agree that in the event ABM systems based on other physical principles and including components capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars are created in the future, specific limitations on such systems and their components would be subject to discussion in accordance with Article XIII and agreement in accordance with Article XIV of the Treaty.⁶¹

This particular Agreed Statement has special relevance for the SDI program. The Treaty apparently intends to prohibit the development, testing, and deployment of components based upon other physical principles (e.g., lasers) which could substitute for ABM missiles, launchers, and radars. This interpretation was disputed by the Reagan Administration. Codification of this intention, or the strengthening of the wording in Agreed Statement D, would require actual treaty amendment.

F. Limited Test Ban Treaty (LTBT)

Because of the vacuous nature of space, the effect of a nuclear explosion in space upon a spacecraft's electronic components would be severe.⁶² Thus, the Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water impacts military space operations directly through its prohibition on nuclear weapons test explosions in space.⁶³

Subsequent efforts to ban nuclear weapons tests explosions above a specified threshold of 150 kilotons and to regulate underground nuclear explosions for peaceful purposes occurred in the Threshold Test

59. *Id.* art. II.

60. *Id.*

61. *Id.* art. D.

62. THE EFFECTS OF NUCLEAR WEAPONS, 24-25, 478, 522-523. (S. Glasstone & P. Dolan 3d ed. 1977).

63. Limited Test Ban Treaty, *supra* note 9.

Ban Treaty (TTBT)⁶⁴ and the Peaceful Nuclear Explosions (PNE) Treaty, respectively.⁶⁵ These as yet unratified treaties would directly impact space operations since parties are not to interfere with "national technical means of verification" employed to provide assurance of compliance.⁶⁶

G. Environmental Modification Convention

The Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques represents an attempt to legally prohibit potentially damaging activities before they occur. Signed in Geneva on May 18, 1977 and entered into force for the U.S. on January 17, 1980, the convention bans the participation of any signatory party in hostile efforts to modify the environment through techniques having widespread, long-lasting, or severe effects.⁶⁷ The term "environmental modification techniques" refers to "any technique for changing -- through the deliberate manipulation of natural processes -- the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space."⁶⁸ A Consultative Committee of Experts is established to resolve possible compliance disputes. Provisions are also made for recourse to the United Nations Security Council.⁶⁹

64. Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Underground Nuclear Weapon Tests, July 3, 1974 United States - USSR, 13 I.L.M. 906 (not ratified by the U.S. Senate), *reprinted in* U.S. ARMS CONTROL AND DISARMAMENT AGENCY, ARMS CONTROL AND DISARMAMENT AGREEMENTS at 167 (1982 ed.).

65. Treaty Between the United States of America and the Union of Soviet Socialist Republics on Underground Nuclear Explosions for Peaceful Purposes, May 28, 1976 United States - USSR, 15 I.L.M. 891 (not ratified by the U.S. Senate), *reprinted in* U.S. ARMS CONTROL AND DISARMAMENT AGENCY, ARMS CONTROL AND DISARMAMENT AGREEMENTS at 173 (1982 ed.) [hereinafter PNE Treaty].

66. TTBT, *supra* note 64. PNE, *supra* note 65.

67. "Widespread" is defined to mean "encompassing an area on the scale of several hundred square kilometres"; "long-lasting" means "lasting for a period of months, or approximately a season"; and "severe" is defined as "involving serious or significant disruption or harm to human life, natural and economic resources or other assets." Environmental Modification Prohibition, *supra* note 35. See also "Understanding Relating to Article I," in Understandings Relating to the Convention. As noted by the Arms Control and Disarmament Agency in *Arms Control and Disarmament Agreements: Texts and Histories of Negotiations* (Washington, D.C.: U.S. Government Printing Office, 1982), the Understandings were not incorporated in the Convention but are part of the negotiating record and were transmitted to the UN General Assembly by the CCD in September 1976.

68. Environmental Modification Prohibition, art. II, *supra* note 35.

69. *Id.* art. V.

H. U.S. National and Military Space Policy

The most recent statement of Department of Defense military space policy⁷⁰ identifies four military space policy areas⁷¹ that are consistent with overall U.S. national defense objectives in space, and with U.S. arms control and other international obligations. These policies are defined as:

Space Support: "those [functions] required to deploy and maintain military equipment and personnel in space. They include activities such as launching and deploying vehicles, maintaining and sustaining space vehicles while in orbit, and recovering vehicles if required."⁷²

Force Enhancement: "those space-related support operations conducted to improve the effectiveness of both terrestrial- and space-based forces. Force enhancement includes such capabilities as communications, navigation, and surveillance."⁷³

Space Control: "operations that ensure freedom of action in space for friendly forces while limiting or denying enemy freedom of action when so directed by the National Command Authority. They include satellite negation and satellite protection."⁷⁴

Force Application: "combat operations conducted from space."⁷⁵

70. DEPARTMENT OF DEFENSE, DEPARTMENT OF DEFENSE SPACE POLICY (1987), (policy signed on February 4, 1987 but not released until March 10, 1987) [hereinafter DoD Space Policy].

71. There may be some confusion of terms: what the DoD statement calls policy may be more appropriately considered here as "mission." The term policy is defined as "a broad course of action or statements of guidance adopted at the national level in pursuit of national objectives." The term mission denotes a task which clearly indicates the action to be taken and the rationale for the action, based on policy and strategy. Missions are considered independent of the means of employment; entirely different forces or support systems may carry out the same mission. For example, a force enhancement mission as defined in the DoD Space Policy would include the mission functions of detecting, identifying, cataloging, tracking, and predicting the impact of space objects; such a mission could be performed by a space-based surveillance system, a space-based radar, or a ground-based radar. See Joint Chiefs of Staff, *JCS Pub. 1: Department of Defense Dictionary of Military and Associated Terms* (Washington, D.C.: Joint Chiefs of Staff, April 1, 1984), at 237, 244.

72. *DoD Space Policy*, *supra* note 70, at 3.

73. *Id.* at 4.

74. *Id.* at 5.

75. *Id.*

These four missions⁷⁶ provide guidance for the national security-related portion of the new National Space Policy,⁷⁷ which was signed on January 5, 1988 and released after the President's State of the Union speech on January 25, 1988. The National Space Policy directive states that the United States will conduct those activities in space that are required for national defense and that are consistent with U.S. treaty obligations. Furthermore, they will contribute to achieving U.S. national security objectives by "1) deterring, or if necessary, defending against enemy attack; 2) assuring that forces of hostile nations cannot prevent our own use of space; 3) negating, if necessary, hostile space systems; and 4) enhancing operations of United States and Allied forces."⁷⁸

In addition to establishing commercial and civil space sector goals, policies, and guidelines, the National Space Policy directive more clearly identifies the responsibilities of the Department of Defense in the space support, force enhancement, space control, and force application arenas. Furthermore, it emphasizes the measures that the Department of Defense is authorized to take -- consistent with U.S. treaty obligations -- to ensure U.S. freedom of action in space. Under the section devoted to space control, the directive states that the Department of Defense will "develop, operate, and maintain enduring space systems" to achieve space control.⁷⁹ This requires an integrated mix of ASAT, survivability, and surveillance capabilities. Furthermore, the development and deployment of a "robust and comprehensive ASAT capability" are expected to be achieved "at the earliest possible date."⁸⁰ Under force application, the directive states that "the DoD will, consistent with treaty obligations, conduct research, development, and planning to be prepared to acquire and deploy" strategic defensive weapons "should national security conditions dictate."⁸¹

76. The synergistic nature of the four mission areas is key because the successful implementation of each mission is very much dependent upon the others. It is somewhat illusionary to say that the United States will "ensure freedom of action in space for friendly forces while limiting or denying enemy freedom of action" if it cannot maintain assured access to space, i.e., the ability to launch, deploy, and maintain space systems when required. Having a degree of control from space, whether by space-based weapons or by some other means, enables a nation to dominate launch corridors and orbital transfer points and thus control other nations' ability to launch payloads into space. Thus both surveillance satellites and weapons systems perform critical missions in support of U.S. national security objectives.

77. The White House, Office of the Press Secretary, *Fact Sheet: National Space Policy*, Jan. 26, 1988 [hereinafter National Space Policy].

78. *Id.* at 3.

79. *Id.* at 8.

80. *Id.*

81. *Id.*

II. ANALYSIS

The implementation of military space policy reflects differing views of the course U.S. military space activities should follow. These views are based on the manner in which a variety of groups within American society define the purpose of space operations.⁸² These viewpoints can be divided into three broad groups: 1) those advocating space as a "demilitarized sanctuary" for civil and commercial operations; 2) those viewing military space operations as providing only force enhancement support to terrestrial forces; and 3) those advocating space as a separate theater of operations.⁸³

The exercise of these views leads to contrasting perspectives on the role of international law in achieving U.S. national objectives. The first group advocates strict adherence to existing legal obligations, and negotiation of additional agreements to decrease the dangers of an arms race in space. The second argues that negotiations for space-related agreements should be based on a clear understanding of the national security benefits that such agreements would bring to military space operations. Finally, the third group advocates the full exploitation of space, independent of legal obligations. Though these descriptions are admittedly simplistic, their impacts on U.S. military space operational concepts are not.

It cannot be said that in every case or issue one viewpoint has been dominant over the others. Currently, U.S. military space operations are consistent with the second viewpoint.⁸⁴ However, while one viewpoint may prevail for a time, as circumstances change and technological opportunities present themselves the U.S. may choose to pursue alternative paths with respect to its legal obligations. The following issues illustrate the complexity involved in integrating these differing views with U.S. national interests and legal obligations:

- A. the legal boundaries of space;
- B. the right of self-defense;
- C. the effect of armed conflict upon treaties;
- D. noninterference and inspection;
- E. ABM Treaty constraints on the SDI programs; and
- F. the antisatellite (ASAT) test ban.

Each issue will be analyzed in detail below.

82. See D. Johnson, *The Evolution of U.S. Military Space Doctrine: Precedents, Prospects, and Challenges*, 31-48 (Dec. 1987) (Ph.D. Dissertation University of Southern California).

83. *Id.*

84. *Id.*

A. The Legal Boundaries of Space

The demarcation between the environments of space and the air might seem to be a somewhat academic exercise, but in light of emerging propulsion-related technologies, the distinction may have serious legal implications for assured access to space.

No specific definition of the breakoff point between the earth's atmosphere and space has been agreed upon in international law. According to one common and practical interpretation, space begins beyond the point where aerodynamic flight becomes impossible and extends outward without limit.⁸⁵ Space also includes all celestial bodies. While space is not subject to national appropriation,⁸⁶ a nation's airspace above its territory is considered inviolate.⁸⁷ Thus, a demarcation between air and space is important in terms of defining the limit to which a state's sovereign airspace extends.

While a nation is justified in taking measures to ensure its defense against unauthorized aerial intrusion by military aircraft,⁸⁸ the right of

85. Numerous criteria have been suggested for establishing the inner limit of space, many focusing on the issues of national sovereignty, territorial boundaries, and international law. For example:

1. National sovereignty should extend as far as a nation's capabilities to defend its air space.
2. Space should begin 15-18 miles above the earth, because 97% of earth's atmosphere lies within those parameters.
3. The upper limit of national sovereignty should extend only as high as an airplane that derives its support from the atmosphere can fly.
4. Sovereignty should extend to the point where the gravitational pull of the sun exceeds the gravitational pull of the earth.
5. The inner limit of space should begin at the outer limit of the earth's atmosphere, estimated to be somewhere between 150 and 50,000 miles from the earth.
6. National sovereignty should extend approximately 53 miles because aerodynamic lift must be replaced by some other force at that point.
7. National sovereignty should extend to the height at which a satellite may be put in orbit (about 90 miles).

See B. BRITTEN, *INTERNATIONAL LAW FOR SEAGOING OFFICERS* 172-79 (4th ed. 1981).

86. Questions of sovereignty are particularly important in the context of the placement of weapons in space, which, according to international treaty, is considered to be "... not subject to national appropriation by claim of sovereignty..." Outer Space Treaty, *supra* note 5.

87. See, e.g., Convention on International Civil Aviation, Chicago, December 7, 1944. 61 Stat. 1180, T.I.A.S. No. 1591, 15 U.N.T.S. 295 [hereinafter Convention on International Civil Aviation].

88. These measures include: (1) the intruder may be ignored; (2) in the event of a landing, the state may choose to exercise administrative and/or possible judicial authority over the aircraft and its occupants; (3) the state may attempt to destroy the aircraft once intrusion has become a fact; or (4) the state may attempt to force the aircraft to leave its airspace, change course, or land in a designated area. See O. Lissitzyn, *The Treatment of Aerial Intruders in Recent Practice and International Law*, AM. J. INT. L. 599 (1953), quoted in G. VON GLAHN, *LAW AMONG NATIONS: AN INTRODUCTION TO PUBLIC*

"innocent passage" of spacecraft may be assumed. A tacit agreement exists between the U.S. and the Soviet Union which allows the peaceful passage of surveillance and reconnaissance spacecraft over each other's territory, primarily because it has been in each superpower's national interest to conduct such activities. However, potential Soviet utilization of its operational ASAT capability in defense of its national airspace might result in renewed efforts to clearly demarcate the division between air and space.

Traditionally, the U.S. legal position has been that a definition of where outer space begins is neither necessary nor beneficial.⁸⁹ Although still consistent with this legal position, the DoD Space Policy argues from an operational perspective that space is a distinct medium, in the same sense as the land, sea, and air, within which U.S. military operations can be conducted.⁹⁰

The explicit distinction between space and the atmosphere implies recognition within the DoD of the differing and separate environmental constraints imposed on space and air operations. However, ongoing and future developments in advanced space-related technologies may tend to blur this distinction. Considerations of a space-based weapon system's range capabilities (i.e., space-to-ground) and a terrestrially-based aerospace vehicle's ability to transit from the atmosphere to space at will⁹¹ have important legal implications which remain to be resolved.⁹²

The legal demarcation of space and the atmosphere may have an impact on the classification of a single stage-to-orbit (SSTO) vehicle such as the proposed National Aerospace Plane (NASP), particularly depending on its potential roles and missions. The notable characteristic of such a system is its ability to maneuver in and out of the atmosphere, in comparison to a similar vehicle, the shuttle, which is dependent upon drop-off tanks to reach orbit. Both systems fall under the legal definitions of "aircraft" and "space objects" as provided in Annex 7 to the Chicago Convention of 1944⁹³ and in the 1972 Space Liability Convention.⁹⁴ The Chicago Convention defines aircraft as "any machine that can derive support in the atmosphere from the reactions of the air."

INTERNATIONAL LAW 362 (2d ed. 1971). An example of aerial intrusion is the U-2 incident of May 1, 1960. See M. Beschloss, *MAYDAY: EISENHOWER, KHRUSHCHEV AND THE U-2 AFFAIR* (1986).

89. Zehner, *International Law and Military Activities in Space* 18 (January 20, 1983) (unpublished paper, Office of the General Counsel, Department of the Air Force).

90. DoD Space Policy, *supra* note 70, at 2.

91. Such as the proposed National Aerospace Plane (NASP).

92. The legal implication of advanced space-related technologies would likely occur in such areas as determinations of liability and arms control regimes.

93. Convention on International Civil Aviation, *supra* note 87.

94. Space Liability Convention, *supra* note 6.

"Space Object" is defined as "the component parts of a space object including its launch vehicle and parts thereof."⁹⁵

International law corresponding to both aircraft and space objects differs, particularly with respect to the assignment of liability of damages should there be a collision causing loss, damage, injury, or death. Under the terms of the Space Liability Convention, absolute liability is placed on the launching state for compensation for damages caused by its space object on the earth or to aircraft in flight.⁹⁶ If, however, damage is caused "elsewhere," i.e., in space, then the launching state is liable only if fault can be determined.

In conclusion, while it does not appear to be critical for military space operations, the demarcation of space has important legal ramifications where determinations of liability are required. Further, the introduction of NASP-derived technologies will have a tremendous operational impact on the allocation of roles and missions among the Services.

B. The Right of Self-Defense

Ensuring that the U.S. can conduct activities in space that are necessary for national security requires both deterrence of attack on U.S. and allied space assets and defense of those assets should they be attacked. The right of self-defense is an integral part of deterrence and defense. But questions concerning the extent of that right are bound up in interpretations of necessity and proportionality.

The right of self-defense and protection of national sovereignty in space is implicitly assured by the Outer Space Treaty. Article III states that "States Parties to the Treaty shall carry on activities in the exploration and use of outer space, including the moon and other celestial bodies, in accordance with international law, including the Charter of the United Nations"⁹⁷ The United Nations Charter, Article 2(4) states that: "All members shall refrain in their international relations from the threat or use of force against the territorial integrity or political independence of any state, or in any other manner inconsistent with the purposes of the United Nations."⁹⁸ This statement, however, is qualified by Article 51 of the UN Charter which recognizes the inherent right of self-defense: "Nothing in the present Charter shall impair the

95. *Id.*

96. *Id.*

97. Outer Space Treaty, *supra* note 5.

98. UN Charter and the Statute of the International Court of Justice, June 26, 1945, 59 Stat. 1031, 1037, T.S. No. 993.

inherent right of individual or collective self-defense if an armed attack occurs against a Member of the United Nations"⁹⁹

Article 51 expressly limits self-defensive measures to cases of armed attack. However, under customary international law, the United States and other nations, including the Soviet Union, have maintained the broader right to act in self-defense to remove a danger or threat of imminent armed attack.¹⁰⁰ Preemptive self-defense of space assets is therefore highly dependent upon strategic and tactical warning -- the receipt of warning information from multiple sensors, the interpretation of that information, and the willingness of the leadership to believe that attack is imminent and to initiate a response.¹⁰¹

Justifiable self-defense is constrained by two elements under customary international law: necessity and proportionality. There is no common interpretation or standard for determining when it is "necessary" to act in self-defense. Only the state invoking the right of self-defense can make the subjective determination that self-defensive action is warranted.¹⁰² In the absence of a definition of what specific acts constitute an attack under international law, it would be extremely difficult for other states to question the validity of the response, other than asserting that an "unreasonable" determination of necessity had been made.¹⁰³ In the context of space control, space-based defensive weapons possessing offensive potential could be perceived as posing an unacceptable risk to another state, thus leading to a subjective interpretation, however unreasonable, that self-defense was required to remove the threat. A state could therefore claim self-defense while actually being the aggressor.¹⁰⁴

Proportionality entails limiting the extent of the self-defensive action to what is reasonably necessary to terminate the condition necessitating the response, i.e., the acts of self-defense are strictly limited to the needs of defense.¹⁰⁵ For example, in response to an attack on a U.S.

99. *Id.* at 1044-45.

100. Zehner, *supra* note 89, at 13.

101. A recent example of the relationship between tactical warning and self-defense response is the attack on the *U.S.S. Stark*. Preliminary investigations indicated that the ship's radars had tracked the Iraqi fighter, and other sensors showed that the plane's fire control radar had illuminated the ship -- a customary and commonly accepted indicator of imminent attack -- but from previous operational experience in the Persian Gulf, the crew did not believe the ship was in immediate danger. The loss of 37 American seamen bears testimony to human behavior and the impact of surprise on strategic and tactical force operations.

102. Zehner, *supra* note 89, at 14.

103. *Id.*

104. *Id.*

105. *Id.*

space system, attacking a launch facility for space-based weapons in peacetime would be highly unreasonable and out of proportion to the needs of self-defense insofar as it would be an attack on the launching state's homeland and invite its own self-defensive, and justifiable, response in return. Still, "homeland sanctuary" is not a legal concept but a political one; U.S. self-defensive actions would be guided by overall U.S. national security objectives, policy and military strategy, and perhaps by the relative strength of the nation to which the U.S. is responding.¹⁰⁶ Therefore, at higher levels of conflict, an attack on the launch facility might be justifiable.

Should a peacetime situation occur wherein the United States invokes its right of self-defense in response to a perceived direct-ascent anti-satellite (ASAT) attack launched by the Soviet Union against a U.S. space system,¹⁰⁷ under international law the U.S. response would be limited to that which was necessary and proportional. Conceivably, the range of legal options open to the U.S. might be:

- (1) do nothing;
- (2) lodge a diplomatic protest against the Soviet Union;
- (3) destroy the incoming direct-ascent ASAT with on-board self-defensive systems;
- (4) deploy the U.S. ASAT¹⁰⁸ against a comparable Soviet space system;
- (5) initiate diplomatic efforts to impose space-related sanctions against the Soviet Union under the auspices of the United Nations Security Council; or
- (6) seek remuneration for damages to the U.S. spacecraft(s) through the Claims Commission mechanism established by the Space Liability Convention.

Option 1, ignoring the attack, would be tantamount to giving the Soviet Union control over U.S. activities in space, and would invite long term consequences inimical to U.S. national interests. In effect, the United States would have abandoned its national space policy objective of "maintaining the freedom of space for all activities that enhance the security and welfare of mankind."¹⁰⁹ Furthermore, space control

106. A case in point is the U.S. raid on Libya in 1986, which represented an attack directed against the aggressor's homeland in response to acts of terrorism elsewhere officially sponsored by that state. This might be termed "horizontal escalation."

107. Ignoring, for the moment, Soviet objectives in initiating such an attack.

108. The air-launched miniature homing vehicle (MHV) antisatellite is not an operational system, unlike the Soviet ASAT. Furthermore, in early 1988 all funding was cut for the program. This leaves the United States without a capability to protect its current space assets.

109. *National Space Policy*, *supra* note 77, at 1.

objectives would be unfulfilled. Option 2, lodging a diplomatic protest, would be legally correct, but probably ineffective in responding to the attack, no matter how strongly worded. Option 3, destroying the incoming attack with on-board self-defensive measures, would be perceived as preemptive self-defense that was necessary and proportional as well as timely and, one would hope, effective. Option 4, deploying the U.S. ASAT against a Soviet system comparable to the U.S. system attacked, would constitute legally justifiable response-in-kind, but it might or might not be operationally timely and effective.¹¹⁰ Imposing space-related sanctions, option 5, would be a lengthy process, and would revolve around questions of what kinds of sanctions to apply and how to apply them effectively. This approach probably would not achieve the results desired by the United States, given the record of previous attempts to apply sanctions against other nations for other causes and the nature of debate in the UN Security Council. Finally, depending on the mission and the space system's operational and monetary value (which may not be declared for security reasons) the terms of the Space Liability Convention may limit the amount of the U.S. recovery sought under option 6. Furthermore, resolution of the U.S. claim would depend upon determination of fault and admission of responsibility by the Soviet Union, and compensation negotiations between the two nations could take a year or more. This option would be neither timely or effective.¹¹¹

Only options 3 and 4 appear to fulfill U.S. space control interests in "[conducting] operations that ensure freedom of action in space for friendly forces while limiting or denying enemy freedom of action."¹¹² However, there would probably be additional options open to the U.S. at higher levels of conflict. Such options might include terrestrial offensive and defensive actions commensurate with the attack on the U.S. space system, limited by overall strategic objectives.

110. Given the current nonfunded status of the U.S. ASAT program, it is highly unlikely that its use under these circumstances would be timely or effective.

111. This scenario assumes that the U.S. space asset in question is not a space-based weapon, i.e., that it is performing either a force enhancement or a space support function. The complication would lie in whether the Soviets perceived it to be part of a space-based strategic defensive system, providing data to a ground-or space-based weapon system. In this case the Soviets would likely claim legal justifications (preemptive self-defense) for their initiation of the attack. Depending on the status of deployment and level of capability of the U.S. strategic defensive system in place at that time, the U.S. might possess an additional defensive option -- employing a ground-or space-based weapon to defend the asset under attack. Again, however, the U.S. response would be limited to that which was necessary and proportional to the attack and not a further escalation.

112. DoD Space Policy, *supra* note 70, at 5.

Option 3 discussed above presupposes a military capability to destroy an enemy ASAT en route to a friendly target. Should this capability not exist -- as it does not today -- one can envision scenarios where a concerted attack against U.S. space assets leaves the United States with no other option than destroying the launch sites themselves. Such a strike might be carried out with terrestrial forces such as cruise missiles or manned bombers. Depending on the level of conflict, such strikes may be considered legal under both the doctrines of self-defense and necessity. Strikes into the homeland sanctuary, however, could be seen as out of proportion to the initial attack.¹¹³ This situation of imbalance and escalation would have been created not only by Soviet aggression, but by the lack of appropriate U.S. space control capabilities to deter that attack initially and to defend against it appropriately. Thus, it can be concluded that the lack of space control capabilities can inhibit U.S. national security goals of deterrence and escalation control.

To summarize, the operational implementation of the right of self-defense is based on legal obligations stemming from the United Nations Charter and subsequent treaties. However, the extent to which it is carried out reflects the nature of the threat, the value of the asset under attack, the capability and availability of the self-defense "mechanism," and guidance derived from realistic assessments of national interests and objectives.

C. The Effect of Armed Conflict Upon Treaties

Should a conflict involving space systems occur, it is unlikely that existing space or arms control-related treaties to which the belligerents are parties would serve to constrain or inhibit hostile behavior and conflict escalation. The extent to which a nation fulfills its treaty obligations depends on its perception of the importance of that treaty to its national interests. If its national interests dictate, it may choose to break out of a treaty entirely or suspend certain provisions. Although there are generally no legal penalties for breakout specifically stated within treaties, most treaties refer directly to the United Nations Charter, thus implicitly acknowledging the right of collective self-defense. Furthermore, breakout carries political and other repercussions which may or may not be effective in deterring conflict.¹¹⁴

While the effect of armed hostilities upon treaties is not clear, there is general agreement that the outbreak of conflict does not automatically

113. See generally Zedalis, *On the Lawfulness of Forceful Remedies for Violations of Arms Control Agreements: "Star Wars" and Other Glimpses at the Future*, 18 N.Y.U. J. OF INT'L L. & POL. 73.

114. See generally Zehner, *supra* note 89 at 27-30.

terminate all treaties; rather, it is dependent upon the treaty's nature, terms, and subject matter.¹¹⁵ Unless the intention not to terminate is specifically expressed in the treaty, the determinative factor is whether there is such incompatibility between the treaty provision in question and the maintenance of a state of hostilities that it is clear the provision is unenforceable.¹¹⁶ The ABM¹¹⁷ and Limited Test Ban¹¹⁸ treaties do not contain provisions for continuation during periods of armed conflict, and so would be suspended or abrogated should either limited or general nuclear war between the U.S. and the Soviet Union break out. However, the expressly defined phrase "military or any other hostile use" of environmental modification techniques in the Environmental Modification Convention indicates that the Convention remains operative during hostilities.¹¹⁹

The Conventions on Liability,¹²⁰ Rescue and Return of Astronauts¹²¹ and Registration of Space Objects¹²² would not be automatically suspended during hostilities. Suspension would legally depend on the belligerents involved in the conflict as well as the nature of the conflict itself. However, whether the conditions of these conventions could actually be implemented during wartime, given the few numbers of space-faring nations today, is a key question.

With respect to the Outer Space Treaty,¹²³ there is no provision for continued application during a state of hostilities. The U.S. position has been that the United States would have the right to determine the extent to which it would consider itself bound by the terms of the Treaty.¹²⁴ U.S. leaders could, therefore, in support of U.S. war operations, suspend specific provisions prohibiting it from conducting military operations in space, e.g., orbiting or stationing weapons of mass destruction in space, or establishing military bases on the moon.¹²⁵

In any event, the customary law of armed conflict -- the "law of war" -- which regulates the conduct of armed hostilities, would apply to military activities in, from, and to space during times of conflict.¹²⁶ The purpose of the law of war is to ensure that the violence of war is used to

115. *Id.* at 27.

116. *Id.*

117. ABM Treaty, *supra* note 8.

118. Limited Test Ban Treaty, *supra* note 9.

119. Environmental Modification Prohibition, *supra* note 35.

120. Space Liability Convention, *supra* note 6.

121. Astronaut Rescue Agreement, *supra* note 29.

122. Space Objects Registration Convention, *supra* note 7.

123. Outer Space Treaty, *supra* note 5.

124. Zehner, *supra* note 89, at 28-29.

125. *Id.*

126. *Id.* at 29-30.

defeat enemy forces, not to cause meaningless and wanton destruction. It is not meant to impede the effective waging of war.¹²⁷ The law of armed conflict represents a legal interpretation of the principles of war, such as surprise, maneuver, mass, and objective. Such legal interpretations are binding upon all nations; but it is not the same as "rules of engagement" which are meant to be guidelines solely for U.S. forces.¹²⁸ In terms of securing space control, the law of armed conflict would permit targeting those space systems or spacecraft performing military functions and the use of sufficient mass to destroy those target objectives is permitted. However, unnecessary and wasteful collateral destruction is to be avoided.¹²⁹ In addition to being illegal under the terms of the Limited Test Ban Treaty¹³⁰ and the Outer Space Treaty,¹³¹ the employment of nuclear weapons explosions to destroy or degrade satellites would impair the operation of satellites owned by nonbelligerents. However, this point would likely be irrelevant to the conflict, although certainly not from the nonbelligerents' perspective.

Armed conflict between space-faring nations has yet to occur. Thus, the effect of armed conflict upon space-related treaties remains to be determined. Undoubtedly it will vary according to the presence or absence of specific penal clauses in individual treaties and the national interests of the belligerents.

D. Noninterference and Inspection

The potential maneuverability of spacecraft, coupled with the difficulty in determining peaceful and malicious intent, raises numerous questions concerning the right of noninterference with and inspection of states' activities in space. The resolution of this issue is important for treaty verification and arms control, as well as for national space policy objectives.

The Outer Space Treaty provides that states are free to conduct activities in the exploration and use of space in accordance with international law, provided they do not interfere with the activities of other states.¹³² A parallel provision for noninterference with "national technical means [NTM] of verification" is found in Article XII of the ABM Treaty,¹³³ Article V of the SALT Interim Agreement,¹³⁴ Article II of the

127. Department of the Air Force, *Commander's Handbook on the Law of Armed Conflict*, Air Force Pamphlet 110-34 at 2-1 (July 25, 1980).

128. *Id.* at 1-1.

129. *Id.* at 2-1.

130. See Limited Test Ban Treaty, *supra* note 9, art. I.

131. See Outer Space Treaty, *supra* note 5, art. IX.

132. *Id.* art. I.

133. ABM Treaty, *supra* note 54, art. XII.

134. SALT I Treaty, *supra* note 56.

Threshold Test Ban Treaty,¹³⁵ and Article IV of the Peaceful Nuclear Explosions Treaty.¹³⁶

Article IX of the Outer Space Treaty includes a provision for state-to-state consultation should one believe the other's space activities may interfere with "activities in the peaceful exploration and use of outer space."¹³⁷ Article XII states that "all stations, installations, equipment and space vehicles on the moon and other celestial bodies shall be open to representatives of other States Parties to the Treaty on a basis of reciprocity . . . [and giving] reasonable advance notice of a projected visit."¹³⁸ Spacecraft in orbit are not included in this provision, leaving methods of verification and compliance to the discretion of individual states. While physical inspection of spacecraft in orbit is not provided for in the Treaty, there are no limitations placed on inspection by observation, unless such observation causes interference with the performance of the orbiting craft's mission or function. The Soviets and others have called for the establishment of "rules of the road" as an additional governing structure for space operations, including the development of "keep-out zones" around satellites.¹³⁹ The following hypothetical situation demonstrates the potential impact of the noninterference and inspection issue on U.S. military operations, particularly space control.

Assuming the U.S. were to suspect that there was an explosive nuclear device aboard a Soviet satellite, what would be the options available to the U.S.? The deployment of a weapon of mass destruction is clearly a violation of the Outer Space Treaty. The U.S., however, would have to have firm evidence of such a weapon, probably through close inspection of the satellite, in order to initiate a response. Considering that very close inspection would be considered interference by the Soviets, the U.S. would have to employ television cameras (which may not clearly indicate hostile intent) or some other mechanism or technology to sense the unique radiation signature from weapons-grade nuclear material.

Following the determination that it was a weapon, the U.S. could: (1) ignore the issue; (2) lodge a diplomatic protest; (3) destroy the satellite; (4) deploy one of its own; or (5) withdraw either partially or entirely from the Outer Space Treaty. Options 1, 2, and 5 would be unwise politically or militarily as they would in effect ignore the potential threat

135. TTBT, *supra* note 64.

136. PNE Treaty, *supra* note 65.

137. Outer Space Treaty, *supra* note 5, art. IX.

138. *Id.* art. XII.

139. While establishment of "rules of the road" would probably be beneficial, the institution of "keep-out zones" is a very contentious issue at the present time and will not be discussed here.

posed by the Soviet satellite to the U.S. and allied spacecraft. Option 3 would only be justifiable if the U.S. could prove that the destruction of the satellite was an act of imminent self-defense. Deploying an American nuclear weapon in space would engender enormous political problems as it would violate the Outer Space Treaty, and would probably not be a timely or effective response-in-kind. In short, no option would appear to demonstrate effective or timely space control.

This illustration demonstrates again the impact of a lack of capabilities to effect space control. Further efforts to institute "rules of the road" will have important legal ramifications which will be decided in the years ahead.

E. ABM Treaty Constraints on SDI Programs

Two of the most contentious legal issues regarding the DoD's objectives of space control and force application are Strategic Defense Initiative (SDI) program compliance with the Anti-Ballistic Missile Treaty of 1972 and the development and deployment of the U.S. anti-satellite capability. Both of these issues are inextricably linked to U.S. military space policy insofar as their outcomes will contribute to determining whether space control and force application objectives will be achieved. Congress and others will continue to actively scrutinize the approach of the new administration and the Strategic Defense Initiative Organization (SDIO) to ensure that all SDI programs are treaty compliant.¹⁴⁰ Furthermore, it is imperative for arms control negotiators to consider the broader picture of U.S. national and military objectives for space operations, and not to preclude potential future courses of U.S. action in space through treaty. For these reasons it is important to address the constraints which the ABM Treaty, as it exists today and as it may be modified, impose on the design and performance of various strategic defense programs.

The position of the SDIO has consistently been that all SDI projects would be treaty compliant until an actual decision to deploy is made, at which time the Treaty would be modified. Based on a reexamination of the negotiating record, the Reagan Administration adopted a more restrictive interpretation of the Treaty¹⁴¹ which is reflected in the

140. The Strategic Defense Initiative Organization is the defense agency established in early 1984 to oversee the development of a research program, the Strategic Defense Initiative (SDI). SDI's purpose is to explore key non-nuclear technologies for concepts for ballistic missile defense. See the 1985 and 1987 SDIO Reports, *supra* notes 21, 22.

141. For a good discussion of the origins of the "broad" versus "restrictive" debate, see M. Clark, *The ABM Treaty Interpretation Dispute: Partial Analyses and the Forgotten Context*, GLOBAL AFFAIRS 58-79 (Summer 1987). See also 133 CONG. REC. S3140-45 (daily ed. March 12, 1987) (submission by Senator Biden of Senate Resolution 167, "ABM Treaty Interpretation Resolution"); 133 CONG. REC. S2967-68, S3090-95, S3171-73 (daily

1987 SDIO Report to the Congress on the Strategic Defense Initiative. Under the terms of the broader SDIO interpretation, ABM systems that are "based on other physical principles" (OPP), and including components capable of substituting for ABM interceptor missiles, ABM launchers, or ABM radars, may be developed and tested, but not deployed, regardless of their basing mode.¹⁴² The restrictive interpretation observes that development and testing of ABM systems based on OPP are allowed only for fixed land-based systems and components.¹⁴³

The SDIO has established specific standards for compliance, three of which are included in the 1987 Report:

1. Compliance must be based on objective, not subjective, assessments of capabilities supporting a single standard of compliance for both the U.S. and the USSR.
2. Article V of the ABM Treaty does not limit research and associated testing short of field testing a prototype ABM system or component.
3. No restrictions are placed by the ABM Treaty on defenses against cruise missiles or nonstrategic ballistic missiles, provided neither have an ABM capability.¹⁴⁴

The Soviet Union has violated the spirit and the letter of SALT I, the ABM Treaty, and the subsequent SALT II unratified but tacitly observed Treaty by increasing its offensive forces significantly, deploying new ABM radars, impeding treaty verification procedures, and other activities.¹⁴⁵ The 1987 Report, while not addressing Soviet violations of the ABM Treaty, does express the concern that the United States "must guard against permitting a double standard of compliance, under which the Soviet government could expect to violate particular provisions of arms agreements without consequence, while the U.S. continues to comply with all provisions."¹⁴⁶

The SDIO has identified the three following types of activities that are permitted in compliance with the ABM Treaty.

Category 1: Conceptual design or laboratory testing short of field testing is allowable research.

ed. Mar. 11, 12, 13, 1987) (statements by Senator Nunn); 133 CONG. REC. S2789-809 (daily ed. Mar. 6, 1987) (statements by Senator Levin).

142. SDIO Report 1987, *supra* note 22, at D-1.

143. *Id.* at D-1 - D-2.

144. *Id.* at D-2 - D-3.

145. See 131 CONG. REC. H249 (daily ed. Feb 4, 1985) (message from the President, "Report on Arms Control Compliance"); 131 CONG. REC. S1021 (daily ed. Feb 5, 1985) (message from the President, "Report on Soviet Arms Control Compliance").

146. See SDIO Report 1987, *supra* note 22, at D-3.

Category 2: Field testing of devices that are not ABM components or prototypes of ABM components is allowable; field testing of ABM components or prototypes which are other than fixed land-based is prohibited. Tests of experimental devices to demonstrate technical feasibility and gather data prior to reaching the stage of "prototype of an actual ABM component" or weapon system are allowed. Tests of non-ABM systems performing the functions of air defense and early warning are allowed.

Category 3: Field testing of fixed land-based ABM components is permitted if they comply with the Treaty limitations that such tests take place at agreed ABM test ranges, test launchers are limited to 15, and rapid reloading and multiple warheads are not tested.¹⁴⁷

The SDIO further states that "[e]xperiments can demonstrate technical feasibility without involving ABM systems or components or devices with their capabilities. Thus, useful and compliant experiments, in both 'mobile' and 'fixed land-based' configurations are allowed."¹⁴⁸

The current SDIO position is probably not the last of the debate. There are several options which the Government may take in the future concerning amendment of the ABM Treaty to allow SDI programs. One option is that the Treaty will be amended at some time in the near future to treat systems based on other physical principles like current ABM systems and components. The reasoning behind this option is that, while weapons such as lasers are not generically similar to ABM missiles, their strategic defensive function is the same, to destroy strategic ballistic missiles in flight. This would bring them within the scope of consideration as a substitute for an ABM system or component.

Another option (in essence the codification of the existing SDIO position) would entail no changes to the Treaty, thereby allowing those advanced technologies and systems to be used as part of an SDI system. The rationale behind this option is that Soviet violations of the existing Treaty would justify a strict, legalistic interpretation of the Treaty by the U.S. in order to be able to pursue the acquisition of SDI capabilities. The Treaty would remain in force, but confined to the explicit constraints applied to ABM missiles, launchers, and radars.

A third option argues that the Treaty should be amended to include stricter prohibitions than currently exist. For example, the Treaty's ban on development, testing, and deployment of ABM systems and components might be amended to include subcomponents or testing of components which could be used in an ABM mode even if they were not tested for that initially. This would eliminate the Space-Based

147. *Id.* at D-5 - D-8.

148. SDIO Report 1986, *supra* note 21, at D-3.

Interceptor (SBI) and Space-Based Laser (SBL) programs as well as others, and would severely, and perhaps critically, impact the scope of the SDI program.

In the long term, the ABM Treaty will require modification prior to deployment of a strategic defensive system. This is not meant to imply that the Treaty will not exist; rather, it may not exist in its current form. It might be modified to ensure that strategic defensive systems do not possess capabilities that are offensive in nature. For example, a space-based laser might be allowed, but its particular wavelength might be constrained so as to not be capable of hitting targets in the Earth's atmosphere.

As it currently stands, amendments necessary because of ambiguities, new technologies, changes in the strategic situation, verification issues, and other reasons may be proposed at any time. Long-time U.S. arms negotiator Paul Nitze¹⁴⁹ has called the Treaty "a living accord . . . one that would make allowance for and adapt to future circumstances . . . not to lock the U.S. and the Soviet Union into a strategic relationship that might be less stable and less desirable than other [future] possibilities . . ." ¹⁵⁰ The Treaty does provide the option of withdrawal from adherence: each party may withdraw from the Treaty "if it decides that extraordinary events related to the subject matter of this Treaty have jeopardized its supreme interests."¹⁵¹ It seems highly unlikely, though, that the U.S. would withdraw from the Treaty, primarily for domestic political reasons. Amending the Treaty is the more probable course of action that the Government will take. It is thus more prudent to assume that advanced SDI technologies and concepts will be specifically brought within the scope of the Treaty.

The implications of any of these courses of action for military space operations in general and space doctrine in particular could be severe. The first and third options discussed would essentially emasculate potential capabilities for space control and force application, while imposing constraints on force enhancement functions, such as surveillance, which could substitute for ABM radars. The second option would certainly be more attractive because it would not hinder the development of space control capabilities.

These observations are, of course, very preliminary and should be analyzed in much greater depth than accomplished here. However, it is imperative for arms control negotiators to consider the broader picture of

149. For an account of Paul Nitze's long career as a statesman and negotiator see TALBOT, *THE MASTER OF THE GAME: PAUL NITZE AND THE NUCLEAR PEACE* (1988).

150. Nitze, *supra* note 55, at 2-3.

151. ABM Treaty, *supra* note 8, at Article XV.

U.S. national and military objectives for space operations, and not to preclude, through treaty, potential future courses of U.S. action in space.

F. ASAT Test Ban

Finally, an issue of great importance to the implementation of U.S. military space objectives is the current debate over the U.S. antisatellite (ASAT) program. Until program funding was cancelled in February 1988,¹⁵² the ASAT consisted of a direct ascent missile with a two-stage rocket engine, on which was mounted an infrared miniature homing vehicle (MHV). The missile would be launched from an F-15 aircraft.¹⁵³ While satellite protection and satellite negation have been long-standing policy objectives independent of the strategic defense debate, issues associated with both ASAT/DSAT and SDI are becoming much more closely aligned. Thus, possible arms control outcomes in anti-satellite technology have ramifications for SDI.

In brief, the U.S. Congress has annually banned antisatellite weapons tests in space since December 1985. This moratorium will be continued as long as the Soviet Union does not test its ASAT. The rationale behind the Congressional moratorium is that because of the American dependence on its satellites, the United States has more to lose in an "ASAT arms race" than the Soviet Union does. Furthermore, it is charged that both the existing U.S. miniature homing vehicle (MHV) ASAT and the Soviet co-orbital interceptor have limited operational capability and thus little military utility.¹⁵⁴

Proponents of the program argue that a U.S. ASAT capability is required to destroy Soviet satellites that can locate and target U.S. forces in case of crisis or war, to counter the operational Soviet ASAT program, and to gain arms control leverage. As General John L. Piotrowski, Commander-in-Chief of the United States Space Command (CINC USSPACECOM), stated in May 1987: "Our country needs a space control capability [The U.S.] could be at a great disadvantage

152. See J. Morrocco, *USAF Budget Cuts SICBM Program, Delays Initial ATF Procurement*, AVIATION WEEK & SPACE TECHNOLOGY, February 22, 1988 at 15; see also T. Foley, *USAF Studies Ground-Based ASAT System to Replace F-15 Missile*, AVIATION WEEK & SPACE TECHNOLOGY, March 7, 1988 at 21.

153. W. Langenberg, *U.S. ASAT: Whither Now?*, 9 WASH. Q. 101 (Fall 1986); A. Carter, *Satellites and Anti-Satellites: The Limits of the Possible*, 10 INT'L SECURITY 46, 80 (1986).

154. See 133 CONG. REC. S2921-S2924 (daily ed. March 10, 1987) (statement by Senator Kerry on the submission of Senate bill S. 691, "A Bill to Limit the Testing of Antisatellite Weapons").

if they [the Soviets] could take out our satellites and they operated with impunity in space."¹⁵⁵

For their part, the Soviets have been leading the effort within the United Nations to ban ASATs. Beginning in 1981, the Soviet Union has introduced several draft ASAT treaties in the United Nations. The first of these draft treaties sought to ban the stationing of weapons of any kind in space, including "reusable manned space vehicles of an existing type or of other types which States Parties may develop in the future."¹⁵⁶ The second draft Treaty submitted to the UN focused on the prohibition of the use of force in space and from space against the Earth.¹⁵⁷ This Treaty's terminology appears to indicate a Soviet effort to ban, through the auspices of the U.N., future U.S. efforts to deploy a space-based strategic defensive system. Both draft treaties include discussion of the use of "national technical means of verification" for compliance and the prohibition of interference with such systems.¹⁵⁸

On December 12, 1984, the United Nations General Assembly (UNGA) issued a resolution calling on the U.S. and the USSR to "initiate immediately and in a constructive spirit negotiations aimed at preventing an arms race in outer space . . ." ¹⁵⁹ In addition, the UNGA "reaffirms that a paramount role in talks on the conclusion of a multilateral agreement or agreements . . . belongs to the disarmament conference as the sole multilateral forum for disarmament negotiations . . ." ¹⁶⁰ While the resolution is not binding upon the U.S., it indicates general trends within the United Nations and could be a portent of the future promulgation of a multilateral ASAT ban treaty.

The most recent Soviet efforts within the UN concerned the introduction of two draft resolutions for the nonmilitarization of space in

155. Speech by Gen. John L. Piotrowski, *The Military Imperatives in Space*, Colorado Springs, CO (May 21, 1987), reported in *Generals Criticize Delay in Tests*, Colorado Springs Gazette-Telegraph, May 22, 1987, at 31.

156. Draft Treaty on the Prohibition of the Stationing of Weapons of Any Kind in Outer Space, U.N. Doc. A/36/192 (1981) (submitted by the Union of Soviet Socialist Republics to the Secretary-General of the United Nations), reprinted in N. JOHNSON, *SOVIET MILITARY STRATEGY IN SPACE* app. 266-68 (1987).

157. Draft Treaty on the Prohibition of the Use of Force in Outer Space and From Space Against the Earth, Aug. 19, 1983, (submitted by the Union of Soviet Socialist Republics to the Secretary-General of the United Nations), reprinted in N. JOHNSON, *supra* note 148, at 269.

158. *Id.* at 267, 270.

159. United Nations Resolution 39/59 (Dec. 12, 1984), reprinted in N. JOHNSON, *supra* note 156 at 272-274.

160. *Id.*

August 1985. The first draft resolution,¹⁶¹ to be issued by the UN General Assembly, called upon all states, especially those having a major potential in space, to adopt effective measures to prevent an arms race in space. The second, entitled "Basic Guidelines and Principles of International Cooperation in the Peaceful Exploration of Outer Space Under Conditions of Its Nonmilitarization,"¹⁶² was also aimed ultimately at banning the U.S. SDI program. Both called for an international conference to discuss the issue, and for the creation of a world space organization whose purpose would be the peaceful study and use of space under "conditions of nonmilitarization."¹⁶³ That organization would be responsible for: (1) ensuring access for all states to the results of scientific and technical achievements regarding peaceful space exploration and study; (2) implementing international cooperative projects in space-related research and technology; (3) providing comprehensive assistance to developing nations to join in such research efforts "without conditions limiting their sovereignty"; (4) coordinating internationally the activities of other international organizations in the peaceful use of space; and (5) assisting, "if necessary," in the enforcement of treaty compliance in order to avert an "arms race in space."¹⁶⁴

If these proposals become multilateral treaties, they could have a dramatic impact on U.S. capabilities to defend its space assets and to assert control of space to further its national interests. For these reasons and others, it is highly unlikely that the U.S. would ever agree to sign such treaties. Should these resolutions become international law despite a U.S. refusal to sign and ratify them, the U.S. could still be held to their terms. Furthermore, the Soviet Union might avail itself of the opportunity to claim legal justification for any military action it took against U.S. space assets.

The ASAT issue remains to be decided. A U.S. antisatellite capability is required to both protect and defend against attacks on U.S. spacecraft performing critical mission functions. The lack of such a capability in the face of policy objectives demonstrates a lack of coherence between U.S. space policy, strategy, and forces. Additional analysis in this area remains to be performed.

161. United Nations General Assembly Draft Resolution on International Cooperation in the Peaceful Exploration of Outer Space Under Conditions of Its Nonmilitarization, U.N. Doc. A/C.1/40/L.1 (submitted by the Soviet Union, Aug. 1985), *reprinted in* N. JOHNSON, *supra* note 148, at 275-76.

162. Guidelines and Principles for the Peaceful Exploration of Outer Space (submitted by the Soviet Union, Aug. 1985), *reprinted in* N. JOHNSON, *supra* note 148 at 277.

163. Defined to mean the "rejection of the creation [including scientific research work], testing and deployment of space offensive armaments." *Id.* at 278.

164. *Id.* at 277-80.

CONCLUSION

The potential offered by advanced space-related technologies and systems has made the missions of space control and force application enter the realm of possibility. However, the benefits of conducting combat operations in space in pursuit of vital national interests must be weighed against U.S. obligations under international law, and their political, economic, and diplomatic costs. It was argued in this article that, with respect to space-based weapons that three courses of action are open to the U.S. These are: (1) a continued adherence to legal obligations at the expense of deploying space-based weapons; (2) the withdrawal from certain treaties on the grounds that national interests are jeopardized; and (3) the renegotiation of portions of those agreements to allow limited deployment of specified capabilities for space control and force application. These three options are in general indicative of the choices open to the U.S. in pursuing its military interests in space.

What should be the proper basis for adjudicating the balance between technology and law? The choice can neither be the preservation of space as a pristine sanctuary from military operations, nor the advocacy of advanced technologies to the exclusion of everything else. Space has traditionally been represented as an isolated, technology-driven environment far removed from daily events on Earth. However, this perspective has become increasingly fallacious as space activities have expanded their influence on national security.

U.S. military space operations face a critical juncture between "technology-push" and legal constraints. On the one hand, new technologies can outpace the development of legal structures to deal with them, while on the other hand, law can serve to inhibit exploitation of military opportunities. This creates a problem because legal and technical considerations may conflict with overriding U.S. national interests.

Difficult decisions over the technology-law interface must be placed within the context of American national interests, including commitments to basic values such as self-defense and freedom of innocent passage through space. Those interests will be served when military space activities are conducted to advance U.S. and allied national security objectives. The U.S. cannot be expected to support space technologies or legal structures which do not serve these interests.

APPENDIX A: PROHIBITED AND/OR CONSTRAINED ACTIVITIES IN SPACE*

1. Appropriating by claim of sovereignty, use or occupation, or any other means, of any portion of outer space to include the moon and celestial bodies. [Outer Space Treaty]
2. Threatening or using force against the territorial integrity and political independence of another state. [United Nations Charter; Outer Space Treaty]
3. Testing nuclear weapons or other nuclear explosive devices, even peaceful nuclear devices. [Limited Test Ban Treaty]
4. Placing in earth orbit, installing on celestial bodies, or stationing in space in any other manner weapons of mass destruction (generally defined as nuclear, chemical, or biological). [Outer Space Treaty; Geneva Protocol of 1925 (on Gas Warfare); Biological Weapons Convention]
5. Building military bases, installations, or fortifications on the moon or other celestial bodies. [Outer Space Treaty]
6. Testing weapons of any kind on the moon or other celestial bodies. [Outer Space Treaty]
7. Conducting military maneuvers on the moon or other celestial bodies. [Outer Space Treaty]
8. Developing, testing, or deploying space-based anti-ballistic missile (ABM) systems or components (e.g., missiles, launchers, or radars). [ABM Treaty]
9. Interfering with Soviet national technical means of verification provided such systems are operating in accordance with generally recognized principles of international law and are in fact being used to verify provisions of the ABM Treaty, SALT I (now expired), the Threshold Test Ban Treaty, and the Peaceful Nuclear Explosions Treaty (should the latter two treaties be ratified by the U.S. Senate). [ABM Treaty; SALT I; Threshold Test Ban Treaty; Peaceful Nuclear Explosions Treaty]

* Note: Full treaty citations are provided in Appendices B and C. The list assumes a peacetime situation; unless specifically expressed, continued application of treaties during crisis or wartime is dependent upon their nature, terms, and subject matter. The U.S. position has been that it would have the right to determine the extent to which it would consider itself bound by specific terms of the treaty or treaties in question. See Michael W. Zehner, Office of the General Counsel, Department of the Air Force. International Law and Military Activities in Space. Washington, D.C.: Office of the General Council, Department of the Air Force, 20 January 1983.

10. Initiating activities that could cause harmful interference with the activities of other states without first consulting with those states. [Outer Space Treaty]
11. Causing harmful contamination of the moon or other celestial bodies. [Outer Space Treaty; Environmental Modification Convention]
12. Using environmental modification techniques to destroy, damage, or injure another state. [Environmental Modification Convention]
13. Failure to notify the Secretary General of the United Nations of the launch of a space object. [Convention on Registration of Space Objects]
14. Failure to pay compensation for damage caused by space objects on the surface of the earth or to aircraft in flight; compensation for damage caused "elsewhere than on the surface of the earth" dependent upon determination of fault. [Convention for International Liability for Damage Caused by Space Objects]
15. Rescue and return of astronauts and objects launched into space. [Astronaut Rescue Agreement]
16. Failure to notify the Soviets immediately of detection of unidentified objects by missile warning systems, or of interference with these systems or with related communications systems, if such occurrences could create a risk of outbreak of nuclear war between the U.S. and the USSR. ["Accidents Measures" Agreement]
17. Interfering with the radio services or communications of other states. [International Telecommunication Convention]

APPENDIX B: TREATIES DIRECTLY AFFECTING SPACE OPERATIONS

1. Charter of the United Nations with the Statute of the International Court of Justice annexed thereto. (Signed at San Francisco June 26, 1945; entered into force October 24, 1945) 59 Stat. 1031; TS 993.
2. Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Underwater. (Signed at Moscow August 5, 1963; entered into force October 10, 1963) 14 UST 1313; TIAS 5433.
3. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies. (Signed at Washington, London and Moscow January 27, 1967; entered into force October 10, 1967) 18 UST 2410; TIAS 6347.
4. Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched into Outer Space. (Signed at Washington, London and Moscow April 22, 1968; entered into force December 3, 1968) 19 UST 7570; TIAS 6599.
5. Relating to Space Telecommunications, with Annexes. (Signed at Geneva July 17, 1971; entered into force January 1, 1973) 23 UST 1527; TIAS 7435.
6. Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War Between the United States of America and the Union of Soviet Socialist Republics. (Signed at Washington September 30, 1971; entered into force September 30, 1971) 22 UST 1590; TIAS 7186.
7. Convention on the International Liability for Damage Caused by Space Objects. (Signed at Washington, London and Moscow March 29, 1972; entered into force October 9, 1973) 24 UST 2389; TIAS 7762.
8. Treaty on the Limitation of Anti-Ballistic Missile Systems. (Signed at Moscow May 26, 1972; entered into force October 3, 1972) 23 UST 3435; TIAS 7503.
9. International Telecommunication Convention, with Annexes and Protocols. (Signed at Malaga-Torremolinos October 25, 1973; entered into force April 7, 1976; abrogated and replaced by the International Telecommunication Convention adopted at Nairobi November 6, 1982 [see below]) 28 UST 2495; TIAS 8572.
10. Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of Underground Nuclear Weapon Tests. (Signed at Moscow July 3, 1974; not yet ratified and therefore not in force)

11. Convention on Registration of Objects Launched into Outer Space. (Signed at New York January 14, 1975; entered into force September 15, 1976) 28 UST 695; TIAS 8480.
12. Treaty Between the United States of America and the Union of Soviet Socialist Republics on Underground Nuclear Explosions for Peaceful Purposes. (Signed at Washington and Moscow May 28, 1976; not yet ratified and therefore not in force)
13. Protocol to the Treaty of May 26, 1972 on the Limitation of Anti-Ballistic Missile Systems. (Signed at Moscow July 3, 1974; entered into force May 24, 1976) 27 UST 1645; TIAS 8276.
14. Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques. (Signed at Geneva May 18, 1977; entered into force January 17, 1980) 31 UST 333; TIAS 9614.
15. Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. (Adopted by the U.N. General Assembly December 5, 1979; the U.S. has neither signed it nor ratified it)
16. International Telecommunication Convention, with Annexes and Protocols. (Signed at Nairobi November 6, 1982; entered into force January 10, 1986)

APPENDIX C: TREATIES POTENTIALLY IMPACTING SPACE OPERATIONS

1. Convention with Respect to the Laws and Customs of War on Land, with Annex of Regulations. (Signed at The Hague July 29, 1899; entered into force April 9, 1902; replaced by Convention of October 18, 1907, as between contracting parties to the later convention) 32 Stat. 1803; TS 403; 36 Stat. 2277; TS 539.
2. Convention Relative to the Opening of Hostilities. (Signed at The Hague October 18, 1907; entered into force January 16, 1910) 36 Stat. 2259; TS 538.
3. Protocol for the Prohibition of the Use in War of Asphyxiating, Poisonous or Other Gases, and of Bacteriological Methods of Warfare (Signed at Geneva, June 17, 1925; entered into force for the U.S. April 29, 1975) 26 UST 571; TIAS 8061.
4. Memorandum of Understanding Regarding the Establishment of a Direct Communications ("Hot Line") Link, with Annex. (Signed at Geneva June 20, 1963; entered into force June 20, 1963) 14 UST 825; TIAS 5362.
5. Agreement on Measures to Improve the Direct Communications Link, with Annex. (Signed at Washington September 30, 1971; entered into force September 30, 1971) 22 UST 1598; TIAS 7187. (Amendment: March 20 and April 29, 1975) 26 UST 564; TIAS 8059.
6. Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on Their Destruction. (Signed at Washington, London and Moscow April 10, 1972; entered into force March 26, 1975) 26 UST 583; TIAS 8062.
7. Agreement Between the United States of America and the Union of Soviet Socialist Republics on the Prevention of Nuclear War. (Signed at Washington June 22, 1973; entered into force June 22, 1973) 24 UST 1478; TIAS 7654.
8. Agreement Relating to the Memorandum of Understanding of June 20, 1963 (TIAS 5362) and the Agreement of September 30, 1971, as Amended (TIAS 7187, 8059), Concerning the Direct Communications Link. (Exchange of notes at Washington July 17, 1984; entered into force July 17, 1984)
9. Memorandum of Understanding Regarding the Establishment of a Standing Consultative Commission. (Signed at Geneva December 21, 1972; entered into force December 21, 1972) 24 UST 238; TIAS 7545.

10. Protocol Establishing and Approving Regulations Government Procedures and Other Matters of the Standing Consultative Commission with Regulations. (Signed at Geneva May 30, 1973; entered into force May 30, 1973) 24 UST 1154; TIAS 7637.

APPENDIX D

TABLE 1

The Impact of International Law Upon Space Support Functions		
<i>Prohibited/Constrained Activity</i>	<i>Impact on Space Support</i>	<i>Source of Prohibition</i>
Appropriation of space by claims of sovereignty	Extraterrestrial material extraction an unresolved issue	Outer Space Treaty
Testing nuclear devices in space	Nuclear weapons testing in space banned, therefore cannot test from space-based platforms	Limited Test Ban Treaty
Deploying weapons of mass destruction in space	Nuclear, CB weapons banned; conventional ones not; can deploy, maintain, and support them	Outer Space Treaty; Geneva Protocol of 1925; Biological Weapons Convention
Building military bases on celestial bodies	No prohibition of military space stations in orbit; no prohibition of space support to military space station	Outer Space Treaty
Testing weapons of any kind on celestial bodies	Space support to testing of conventional weapons in space legal	Outer Space Treaty
Conducting military maneuvers on celestial bodies	Conducting military maneuvers in free space legal; no restrictions on launch and other support	Outer Space Treaty
Developing, testing, or deploying space-based ABM systems or components	No space support to testing or deploying space-based ABM systems or components	ABM Treaty
Interfering with other states' space-related activities without prior consultations	No definition of "interference"; space support activities shouldn't affect them intentionally	Outer Space Treaty

TABLE 1 (continued)

The Impact of International Law Upon Space Support Functions		
<i>Prohibited/Constrained Activity</i>	<i>Impact on Space Support</i>	<i>Source of Prohibition</i>
Causing harmful contamination of the moon or other celestial bodies	Space support activities should not contribute to contamination	Outer Space Treaty; Environmental Modification Convention
Launching space objects without notifying the U.N.	Space launches must be reported	Convention on the Registration of Space Objects
Avoid paying compensation for damage caused on surface of Earth or to aircraft in flight by space objects	No impact seen; political risk in admitting causation	Convention for International Liability for Damage Caused by Space Objects
Causing damage "elsewhere" (i.e., space)	Liability depends on determination of fault	Convention for International Liability for Damage Caused by Space Objects
Hindering the rescue and return of astronauts and space objects	Goal of assured access to space affected; no restriction on inspection of objects in space	Astronaut Rescue Agreement
Failing to notify Soviets immediately of detection of unidentified space objects by missile warning systems, or of signs of interference with those systems or related communications facilities, if risk of nuclear war is created	Constrains attacks on missile warning and communications systems during peacetime and crisis; may impact space support functions	"Accidents Measures" Agreement
Interfering with communications systems of other states without prior consultation	Strict interpretation of "interference" may include electronic or other jamming from space-based platforms supported by space support functions	International Telecommunication Convention

TABLE 2

The Impact of International Law Upon Force Enhancement Functions.		
<i>Prohibited/Constrained Activity</i>	<i>Impact on Force Enhancement</i>	<i>Source of Prohibition</i>
Appropriation of space by claims of sovereignty	Permanent "keep-out zones" may be illegal in peacetime; a contentious issue that has not been resolved	Outer Space Treaty
Threatenin use of force against another state's territorial integrity	Necessary and proportional self-defense legal	United Nations Charter; Outer Space Treaty
Interfering with Soviet national technical means (NTM) of verification	Force enhancement functions cannot interfere with NTM	ABM Treaty; SALT I; Threshold Test Ban Treaty; Peaceful Nuclear Explosions Treaty †
Interfering with other states' space-related activities without prior consultation	No definition of "interference"; in strict interpretation jamming may be illegal	Outer Space Treaty
Causing harmful contamination of the Moon or other celestial bodies	Indivisibility of space environment would adversely impact U.S. force enhancement functions as much as enemy's	Outer Space Treaty; Environmental Modification Convention
Using environmental modification techniques in space	Indivisibility of space environment would adversely impact U.S. force enhancement functions as much as enemy's	Environmental Modification Convention
Hindering the rescue and return of astronauts and space objects	No impact seen; political risk	Astronaut Rescue Agreement
Failing to notify Soviets immediately of detection of unidentified space objects by missile warning systems, or of signs of interference with those systems or related communications facilities, if risk of nuclear war is created	Constrains attacks on missile warning and communications systems during peacetime and crisis; may impact survivability of force enhancement functions	"Accidents Measures" Agreement

TABLE 2 (continued)

The Impact of International Law Upon Force Enhancement Functions.		
<i>Prohibited/Constrained Activity</i>	<i>Impact on Force Enhancement</i>	<i>Source of Prohibition</i>
Interfering with communications systems of other states without prior consultation	Strict interpretation of "interference" may include electronic or other jamming performed by force enhancement systems	International Telecommunication Convention

† Note: SALT I has expired; and to date, the Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty have not been ratified by the Senate.

TABLE 3

The Impact of International Law Upon Space Control Functions		
<i>Prohibited/Constrained Activity</i>	<i>Impact on Space Control</i>	<i>Source of Prohibition</i>
Appropriation of space by claims of sovereignty	Permanent "keep-out zones" may be illegal in peacetime; a contentious issue that has not been resolved	Outer Space Treaty
Threatening/using force against another state's territorial integrity	Necessary and proportional self-defense legal	United Nations Charter; Outer Space Treaty
Testing nuclear devices in space	Nuclear weapons testing in space banned; also experiments employing nuclear charges	Limited Test Ban Treaty
Deploying weapons of mass destruction in space	Nuclear, chemical/biological weapons banned; conventional ones not banned	Outer Space Treaty; Geneva Protocol of 1925; Biological Weapons Convention
Building military bases on celestial bodies	No prohibition of military space stations in orbit	Outer Space Treaty
Testing weapons of any kind on celestial bodies	Testing of conventional weapons in space legal	Outer Space Treaty
Conducting military maneuvers on celestial bodies	Conducting military maneuvers in free space legal	Outer Space Treaty
Developing, testing, or deploying space-based ABM systems and components	Exotic technology systems and components subject to discussion in Standing Consultative Commission	ABM Treaty
Interfering with Soviet national technical means (NTM) of verification	Can interfere with (in self-defense) spacecraft not performing NTM functions	ABM Treaty; SALT I; Threshold Test Ban Treaty; Peaceful Nuclear Explosions Treaty †
Interfering with other states' space-related activities without prior consultation	No definition of "interference"; in strict interpretation jamming may be illegal	Outer Space Treaty

† Note: SALT I has expired; and to date, the Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty have not been ratified by the Senate.

TABLE 3 (continued)

The Impact of International Law Upon Space Control Functions		
<i>Prohibited/Constrained Activity</i>	<i>Impact on Space Control</i>	<i>Source of Prohibition</i>
Causing harmful contamination of the Moon or other celestial bodies	Indivisibility of space environment would adversely impact U.S. space control activities as much as enemy's	Outer Space Treaty; Environmental Modification Convention
Failing to register launch of space objects with U.N.	No impact on space control seen; political risk	Convention on Registration of Space Objects
Avoiding paying compensation for damage caused on surface of Earth or to aircraft in flight by space objects	No impact on space control seen; political risk in admitting causation	Convention for International Liability for Damage Caused by Space Objects
Causing damage "elsewhere" (i.e., space)	Liability depends on determination of fault	Convention for International Liability for Damage Caused by Space Objects
Hindering the rescue and return of astronauts and space objects	Inspection of space objects before return to launching party (in order to assess capability) not prohibited	Astronaut Rescue Agreement
Failing to notify Soviets immediately of detection of unidentified space objects by missile warning systems, or of signs of interference with those systems or related communications facilities, if risk of nuclear war is created	Constrains attacks on missile warning and communications systems during peacetime and crisis	"Accidents Measures" Agreement
Interfering with communications systems of other states without prior consultation	Strict interpretation of "interference" may include electronic or other jamming	International Telecommunication Convention

TABLE 4

The Impact of International Law Upon Force Application Functions		
<i>Prohibited/Constrained Activity</i>	<i>Impact on Force Application</i>	<i>Source of Prohibition</i>
Appropriation of space by claims of sovereignty	Permanent "keep-out zones" may be illegal in peacetime; a contentious issue that has not been resolved	Outer Space Treaty
Threatening use of force against another state's territorial integrity	Necessary and proportional self-defense legal	United Nations Charter; Outer Space Treaty
Testing nuclear devices in space	Nuclear weapons testing in space banned; also experiments employing nuclear charges	Limited Test Ban Treaty
Deploying weapons of mass destruction	Nuclear, chemical/biological weapons banned; conventional ones not	Outer Space Treaty; Geneva Protocol of 1925; Biological Weapons Convention
Building military bases on celestial bodies	No prohibition of military space stations in orbit	Outer Space Treaty
Testing weapons of any kind on celestial bodies	Testing of conventional weapons in space legal	Outer Space Treaty
Conducting military maneuvers on celestial bodies	Conducting military maneuvers in free space legal	Outer Space Treaty
Developing, testing, or deploying space-based ABM systems or components	Exotic technology systems and components subject to discussion in Standing Consultative Commission	ABM Treaty
Interfering with Soviet national technical means (NTM) of verification	Can interfere with (in self-defense) spacecraft not performing NTM functions	ABM Treaty; SALT I; Threshold Test Ban Treaty; Peaceful Nuclear Explosions Treaty †
Interfering with other states' space-related activities without prior consultations	No definition of "interference"; in strict interpretation jamming may be illegal	Outer Space Treaty

† Note: SALT I has expired; and to date, the Threshold Test Ban Treaty and the Peaceful Nuclear Explosions Treaty have not been ratified by the Senate.

TABLE 4 (continued)

The Impact of International Law Upon Force Application Functions		
<i>Prohibited/Constrained Activity</i>	<i>Impact on Force Application</i>	<i>Source of Prohibition</i>
Causing harmful contamination of the Moon or other celestial bodies	Indivisibility of space environment would adversely impact U.S. military operations as much as enemy's	Outer Space Treaty; Environmental Modification Convention
Using environmental modification techniques in space	Indivisibility of space environment would adversely impact U.S. military operations as much as enemy's	Environmental Modification Convention
Failing to register launch of space objects with U.N.	No impact on force application seen; political risk	Convention on Registration of Space Objects
Avoiding paying compensation for damage caused on surface of Earth or to aircraft in flight by space objects	No impact seen; potential political risk in admitting causation	Convention for International Liability for Damage Caused by Space Objects
Causing damage "elsewhere" (i.e., space)	Liability depends on determination of fault	Convention for International Liability for Damage Caused by Space Objects
Hindering the rescue and return of astronauts and space objects	Inspection of space objects before return to launching party (in order to assess capability) not prohibited	Astronaut Rescue Agreement
Failing to notify Soviets immediately of detection of unidentified space objects by missile warning systems, or of signs of interference with those systems or related communications facilities, if risk of nuclear war is created	Constrains attacks on missile warning and communications systems during peacetime and crisis	"Accidents Measures" Agreement
Interfering with communications systems of other states without prior consultations	Strict interpretation of "interference" may include electronic or other jamming	International Telecommunication Convention