

Space Weaponization and the United Nations Charter Regime on Force: A Thick Legal Fog or a Receding Mist?

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Abstract

As space technology develops into more sophisticated areas such as space planes and a variety of space-based platforms with the potential capability to carry weapon systems, the issue of space as a theatre of war is a now a pressing issue that needs to be addressed. Underpinning this Article is a discussion of the militarization and weaponization of outer space and its intersection with the international regime on the use of force. It juxtaposes technological advances in the military utility of space and the tenets of the UN Charter against the landscape of the “peaceful purposes” mantra that underpins the Space Law regime. The Article highlights the fact that the international legal arena now has a new game in the making for which it is in many ways ill equipped to handle as the ambitious military programs of extant space powers seek to utilize the full spectrum of space technology for both defensive and offensive purposes. At the heart of the Article is the argument that there is a need to analyze extant principles on the use of force in order to address the lacunae in the current regime on the use of force as a means to enhance its utility.

I. Introduction

On January 11, 2007, the Chinese military launched a KT-1 rocket that successfully destroyed a redundant Chinese Feng Yun 1-C weather satellite, which it had launched in 1999, in Low Earth Orbit approximately 800 kilometers above the earth. As details of the test emerged, governments from around the world, including the United States, Canada, United Kingdom and Australia, all raised diplomatic concerns as to the nature of the test and its ramifications.¹ The Chinese remained tight-lipped in the next few days following the test. Finally, twelve days after the test and in the face of increasing anxiety amongst the international community, the Chinese

Government acknowledged its existence. In seeking to allay concerns regarding the military nature of the test as a potential harbinger of a space arms race, as well as criticism that it was inconsistent with the “peaceful purposes” spirit underpinning the space law regime, the Chinese Government reaffirmed that it was committed to the “peaceful development of outer space.”²

In another development, just ten days after the Chinese satellite test, the Czech Government confirmed that it would be willing to host a large U.S. military site for the Pentagon’s missile shield system, involving the construction of a radar facility east of Prague.³ The implication and practical import of the Czech Government statement, coming so soon after the Chinese test, adds further to an increasingly troubling perspective, particularly when one considers that just five years earlier the United States had withdrawn from the Anti-Ballistic Missile (ABM) Treaty, a significant bilateral treaty.⁴ The ABM treaty expressly prohibits *development, testing and deployment of sea-based, air-based, space-based, and mobile land-based ABM systems.*⁵ It was meant as an effective measure to limit anti-ballistic missile systems and thus a substantial factor in curbing the race in strategic offensive arms.⁶ The key reason given by the United States was that the treaty was outdated.⁷ However, it is clear that the withdrawal provides the United States with few legal obstacles in developing strategic weapon

systems, in particular space-based devices critical to its National Missile Defense program, and American space superiority.

With China ascendant in the twenty-first century, the space-technology rivalry, particularly its military utility, among the space powers appears to be intensifying. Recall that in 2000, China unveiled an ambitious ten-year space program.⁸ While one of the strongest immediate motivations for this program appears to be political prestige, China's space efforts almost certainly will contribute to improved military space systems.⁹ With the United States actively pursuing a National Missile Defense program, in 2003, a Chinese military official commented that China's army had already introduced the concept of "space force strength,"¹⁰ in apparent reference to a similar U.S. military concept.¹¹ An indication that Chinese space programs are at least partially driven by military and security considerations is the fact that the Chinese space program has always been under the command of senior officers of the People's Liberation Army.¹²

These stark reminders of the military aspects of space technology raise questions of international law and the current legal regime regulating the military uses of outer space. Moreover, as well as highlighting issues arising from the specific United Nations international

treaties and resolutions that form an integral part of the international law of outer space, the utilization of space technology, in this respect, raises broader concerns regarding the “weaponization” of outer space and the use of such weapons in the context of an armed attack or as an act of self-defense, as recognized within the framework of the United Nations Charter and the international legal regime that regulates of the use of force.

The increasing weaponization of outer space poses not only difficult legal questions but also represents a clear and present danger to international peace and security. There is already a great fear of an arms race being undertaken in space, with the latest developments in both Beijing and Washington adding further fuel to that fire. In this context, one can certainly envisage that the deliberate destruction of, say, a communications or weather satellite by a missile such as was launched by China or like those that could be launched as part of the U.S. missile shield system, even if not resulting in any immediate civilian casualties, could have a devastating impact on a community, country, or even region of the world. Millions of lives and livelihoods could potentially be affected, economies destroyed, and essential services incapacitated.

Yet, although the position might not be as categorical as the United Kingdom

spokesperson suggested in the quote referred to above, the legal regime that governs the possible weaponization of outer space is, as this article will discuss, unsatisfactory, capable of differing interpretations and largely protective of a State's sovereign right to utilize force in self-defense—even if that may involve the use of space technology—if it is deemed appropriate.¹³ In the end, although there are some fundamental underlying principles of international law that are relevant to the issue of space weaponization, it is by no means clear that the deployment of such weapons, or their use as an act of force, are proscribed in certain circumstances.

This article seeks to discuss some of the broad questions, particularly in the light of ever-expanding military uses of outer space and the significance, particularly to the major powers, of the military and strategic value associated with space technology superiority. This article first looks at the historical efforts of the two main protagonists, the United States and the Soviet Union/Russia, to develop space military technology, recognizing the unique strategic values this offered. It then highlights the relevant provisions of both international space law and the regime prohibiting the use of force under the United Nations Charter that may apply to the weaponization of outer space and proceeds to discuss the interaction of these legal principles to gauge whether and how they might, if at all, have a practical effect in curbing the growing threat

posed by space weaponization, including in circumstances of a cyber-attack.

The authors conclude that, in light of the unique features of outer space and the very significant consequences that could emerge from a space arms race or, even worse, a “space war,” the principles that do exist may not be specific enough to provide appropriate regulation for the increasingly diverse ways that outer space could be used during the course of armed conflict. It follows that there is a growing need to reach a consensus on additional space law regulation directly applicable to the increasing threat represented by the weaponization of outer space and its potential for use as a direct theatre of war.

II. The Historical Quest for Strategic Military Advantage in Outer Space

In order to evaluate the practical relevance of current international (space) law principles to the issue of space weaponization, it is necessary to first examine the historical development of space as a military area and the reasons behind this. The United States and the Soviet Union led the way in conquering outer space in the 1950s through a series of initiatives that included satellites, spacecraft launches, and nuclear detonations. In October 1957, humankind finally could regard space as a reachable frontier with the launch by the Soviet Union of Sputnik I, which proceeded to orbit the Earth. Almost immediately, important principles of space law were

born. As Judge Lachs in the *North Sea Continental Shelf Cases* observed:

[T]he first instruments that men sent into outer space traversed the air space of States and circled above them in outer space, yet the launching States sought no permission, nor did the other States protest. This is how the freedom of movement into outer space, and in it, came to be established and recognised as law within a remarkably short period of time.¹⁴

In the same year as Sputnik 1, the United States successfully undertook nuclear detonations in space.¹⁵ It was already apparent that there were an increasing range of possible uses of outer space, with the only limitation being one's imagination and the development of appropriate technology. Almost as soon as Sputnik I was launched, the international community became concerned about the possibility for use of outer space for military purposes as well as the fear that it could perhaps ultimately be used as a theatre of war, particularly in the context of the prevailing Cold War. In December 1958, the United Nations emphasized the need "to avoid the extension of present national rivalries into this new field."¹⁶

By 1961, the General Assembly had recommended that international law and the United Nations Charter¹⁷ apply to "outer space and celestial bodies."¹⁸ This was repeated in General

Assembly Resolution 1962,¹⁹ which set forth a number of important principles ultimately embodied in the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies (the “Outer Space Treaty”).²⁰ Specific reference in the Outer Space Treaty to the United Nations Charter, such as Article III’s provision that activities in the exploration and use of outer space shall be carried out “in accordance with international law, including the Charter of the United Nations,” was important given that the maintenance of international peace and security is the underlying principle of the system established under the Charter.²¹ It was assumed that, through the application of Article III of the Outer Space Treaty, the prohibition on the use of force contained in Article 2, Section 4 of the Charter, which represents a crucial element in the regulation of international relations, would be equally applicable to the use of outer space.²²

In 1961, the Soviet Union launched the first manned spaceflight when it placed Yuri Gagarin into orbit. The United States followed suit in 1962. This further ratcheted up the scale of the technological race between the United States and the Soviet Union and marked the genesis of a technological race that would soon metamorphose into a (largely) terrestrial arms race, with each seeking to assert dominance in space exploration and usage. As the Cold War confrontation

between the United States and the Soviet Union intensified, the military utility outer space offered was not lost on those nations. Research and development of state of the art technology to capitalize on the strategic advantages, perceived or real, of outer space began.

In the early 1980s, then U.S. President Ronald Reagan's Strategic Defense Initiative (SDI) provided a measure of legitimacy to many ideas that were formerly seen as impossible.²³ Since the announcement by President Reagan of the SDI,²⁴ an arms race in outer space has come to mean something more, such as the introduction of new, futuristic weapons, including beam, kinetic, electronic, and laser weapons into the space environment, as well as Space Operated Vehicles (SOVs) with the capability to launch ordnances. Several decades after humankind's conquest of space, there has not yet been a case of force being actively used in outer space by one nation against another. However, states have undertaken what might be termed passive military activities in outer space since the advent of space technology, and outer space is increasingly being used as part of active engagement in the conduct of armed conflict. Not only is the information gathered from outer space—through, for example, the use of remote satellite technology and communications satellites—used to plan military engagement on Earth, but space assets are now used to direct military activity and represent an integral part of the military

hardware of the major powers.

Given the increasing global reliance on space systems and increasing militarization and weaponization of outer space, its evolution into a distinct theatre of military operations appears increasingly imminent. Several commentators have gone even further and opined that space warfare is, in fact, inevitable.²⁵ A harbinger of things to come was flagged by the release in 1998 of the Long Range Plan by the United States Space Command (USSPACECOM) outlining the U.S. military vision for control of space and developing a capacity to project force from space.²⁶ More significant was its sister document issued in 1999 by United States Department of Defense, which expanded and reinforced themes raised by USSPACECOM.²⁷

In the 21st Century, the United States is preparing its next military objective—a doctrine to establish “space superiority.”²⁸ Following the attacks of September 11, 2001, the U.S. Administration issued a landmark policy paper in which it emphasized the need for “[i]nnovation within the armed forces [which] will rest on experimentation with new approaches to warfare, strengthening joint operations, exploiting U.S. intelligence advantages, and taking full advantage of science and technology.”²⁹ As an integral part of this policy, it was necessary to maintain technological supremacy so as to “dominate the space dimension of military operations.”³⁰ This

necessitates having “the ability to defend the homeland, conduct information operations, ensure U.S. access to distant theaters, and protect critical U.S. infrastructure and assets in outer space.”³¹

Space superiority, if in fact it is truly achievable, would ensure the freedom to operate in the space medium while denying the same to an adversary and, like air superiority, cannot be taken for granted.³² The new doctrine means that preemptive strikes against enemy satellites could become “crucial . . . steps in any military operation.”³³ The United States Air Force (USAF) believes that seizing control of the “final frontier” is essential for modern warfare, noting that “[s]pace superiority provides freedom to attack as well as freedom from attack.”³⁴ Space and air superiority is now deemed crucial in any military operation.³⁵ In this regard, the concept of counterspace operations has been articulated premised on the notion of destroying enemy satellites in the event of combat to improve the chances of victory.³⁶

The idea of space warfare has given rise to some disturbing rhetoric. In 2001, a commission headed by former U.S. Secretary of Defense Donald Rumsfeld suggested that an “attack on elements of U.S. space systems during a crisis or conflict should not be considered an improbable act.”³⁷ The report went on to (in)famously warn of the possibility of a “Space Pearl Harbor”—a surprise attack on the space assets of the United States.³⁸ More worryingly, space

warfare has developed beyond mere talk and is now brewing into a potent reality. Despite its positive aspects, the existing space law regime is inadequate to deal with the specific challenges posed by these developments, and it is with this in mind that the following sections of this article juxtapose the weaponization of outer space and the United Nations Charter regime on the use of force. Despite the fact that the space law regime is premised on the basic principle of peaceful purposes, outer space has the dubious distinction of already being a highly militarized environment.

III. Space Law and the United Nations Charter: Peeling a Legal Onion?

A. UNITED NATIONS CHARTER: PRACTICAL RELEVANCE AND APPLICABILITY TO OUTER SPACE?

The space regime as it now exists rests upon five principal United Nations multilateral treaties on outer space,⁴⁰ supplemented by several other treaties (not specifically directed to outer space) and a series of bilateral agreements of international significance, primarily between the United States and the Soviet Union. The five space law treaties evolved from a series of General Assembly resolutions and declarations following the creation by the United Nations General Assembly of the Committee on the Peaceful Uses of Outer Space (COPUOS) to study problems

of governing outer space.⁴¹

The issue of whether general principles of international law apply to outer space is still one of contention. On one hand, there is the extreme position held by some commentators that seeks to preclude *in toto* the applicability of general principles of international law (*lex generalis*). Proponents of this position argue that since the Outer Space Treaty does not enumerate exactly which “general principles” apply to outer space, certain fundamental provisions of international law, specifically those concerning the use of force in self-defense, cannot and should not be made applicable to outer space on the basis that they are inconsistent with the principles of the Outer Space Treaty itself.⁴²

On the other hand, some leading scholars, including Professors Ivan A. Vlasic and Manfred Lachs, contend that a proper reading of Article III of the Outer Space Treaty makes the *lex generalis*—including rules of customary law—and the United Nations Charter applicable to outer space.⁴³

We concur with the view presented by Vlasic and Lachs, not only because it is by far the more well articulated and popular position, but also because it accords with the reality of the development of customary principles relating to space law—the use of analogy to other

international legal spheres as a basis for development. This position, however, should be tempered with the reality that Article III is not an automatic, blanket extension to outer space and celestial bodies of the entire realm of international law but, rather, extends relevant principles, including the United Nations Charter.⁴⁴ Christopher M. Petras notes that this position does not encompass *lex specialis*, stating that certain rules of international law and/or provisions of the Charter cannot, by definition, apply to outer space since they are by their nature *lex specialis* for certain environments.⁴⁵ Petras thus further clarifies the Vlasic and Lachs position and, in doing so, makes it even more appealing both legally and practically.⁴⁶

The sentiments underlying the United Nations Charter were further cemented by the restrictions imposed in relation to nuclear weapons and weapons of mass destruction (WMDs) by Article IV of the Outer Space Treaty, although, as has been well documented by leading commentators and is further discussed later in this article, this provision in and of itself does not represent a complete restriction on the placement of weapons in outer space.⁴⁷ Indeed, there have been, from time to time, proposals to amend Article IV in order to enhance these restrictions, but this has not (yet) eventuated.⁴⁸

The prevalent view is that the United Nations Charter, including the legal regulation of force provisions, applies in outer space, particularly in view of the fact that, as stated above, Article III of the Outer Space Treaty—the most significant treaty on outer space law and often referred to as the “Space Magna Carta”—specifically references the Charter.⁴⁹ A succinct survey of some leading commentators further reinforces this view. Beginning in 1968, Professor J.E.S. Fawcett asserted that no provision of the Charter or rule of customary law imposes “any upper limit above the surface of the Earth on the legitimate exercise of the right of self-defense.”⁵⁰ The position was reiterated two years later by Professors S. Houston Lay and Howard J. Taubenfeld, who strongly echoed the position by Fawcett: “Under present treaty rules and/or customary law, as demonstrated in practice, national statements, and United Nations resolutions . . . [i]nternational law, including the United Nations Charter where appropriate, applies to acts in outer space. This expressly includes the right of self defense.”⁵¹ The position of these commentators received the approval of the Legal Sub-Committee of COPUOS, which rejected the idea that the right of self-defense is not applicable in regard to outer space.⁵² In practical terms, this conclusion means it is unlawful for a state to interfere in a hostile manner with the assets of another state in outer space,⁵³ and the exception to the bar on the use of force under

Article 51 of the United Nations Charter likewise applies in outer space.⁵⁴ Thus, a state may legally use force to defend itself against hostile actions should the situation arise.

B. “PEACEFUL PURPOSES”: ACCEPTED IN PRINCIPLE, CONTESTED IN SUBSTANCE

It is estimated that more than half of all American and Russian (and former Soviet Union) spacecrafts presently orbiting the Earth have served and continue to serve military purposes. Both of these space-faring powers, however, have steadfastly described all of their space missions as “peaceful.”⁵⁵ The new space power, China, also adheres to this description. In the past, it has been relatively easy to take issue with these assertions in circumstances where a space object is launched with the single purpose of conducting military activities. The crux of the present-day problem, however, is that the majority of those devices involved in military uses of outer space have a dual purpose not only in the sense that they are both offensive and defensive, but also because they carry out both civilian/commercial activities as well as military ones. This concept of a dual use satellite is by now well-known in space parlance, giving rise to further difficult legal issues.

In addition, there has traditionally been a great semantic and interpretational battleground

regarding the meaning of the “peaceful purposes” principle that underpins the international space law regime. Article IV of the Outer Space Treaty, which states “[t]he Moon and other celestial bodies shall be used . . . exclusively for peaceful purposes,”⁵⁶ specifies what is seemingly a very important component of international space law. This principle is also reflected in Article III of the Moon Agreement. Even before the finalization of the international space law treaties, the General Assembly recognized “the common interest of all mankind in the progress of exploration and use of outer space for peaceful purposes” through the 1963 “Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space.”⁵⁷

However, almost as soon as this fundamental principle was enunciated, disagreement and confusion arose as to exactly what was meant by it. The United States, from the very beginning of the Space Age up to the present, has maintained the official position that “peaceful” means “non-aggressive” and not “non-military,”⁵⁸ except for some of its earliest statements on the international control of space activities, which appeared to support the proposition that outer space should be used exclusively for non-military purposes.⁵⁹ Apart from those early suggestions, the overriding goal of U.S. space policy during the pre-Outer Space Treaty era was to gain international recognition of the legality of reconnaissance satellites while simultaneously

discouraging military space activities that threatened those assets.⁶⁰ It is therefore not surprising that the traditional, almost dogmatic interpretation of peaceful by the United States as synonymous with non-aggressive reflects and upholds that policy. The interpretation is regarded by many as a corollary to and in conflict with the meaning of the terms peace and aggression found in the United Nations Charter.⁶¹ By the same token, Vlasic notes that “[t]he term ‘peaceful’ [purposes] . . . was interpreted by the United States to mean . . . [that] all military uses are permitted and lawful as long as they remain ‘non-aggressive’ as per Article 2 (4) of the UN Charter, which prohibits ‘the threat or use of force.’”⁶²

In contrast, as part of a diplomatic offensive to ban U.S. reconnaissance satellites, the Soviet Union initially took the view, at least publicly, that peaceful purposes meant non-military and that all military activities in space were thus prohibited, despite the fact that it was undoubtedly already engaged in and contemplating the potential for military uses of outer space. Although the Soviet government consistently maintained that all of its activities in space were peaceful and scientific, its official line eventually softened as its military satellite programs came into their own. By the spring of 1958, less than a year after the launch of Sputnik I, the anticipation of the availability of reconnaissance satellites triggered a decisive shift in Soviet

policy towards the view that space could and should be used for peaceful rather than non-military purposes, leading to the plausible conclusion that the Soviet Union “acquiesced to the United States interpretation,” at least at that time.⁶³

The U.S. position on Article III of the Moon Agreement is that it permits military activities that are not aggressive, that is, those undertaken for peaceful purposes. However,

[t]he reference to peaceful purposes in this Article does not add any clarification to the contradictory interpretations given to the term “peaceful purposes” in the Outer Space Treaty. The Moon Agreement adds little, if anything, to the provisions of the Outer Space Treaty in the realm of military space activities.⁶⁴

Jonathan Halpern adds:

The argument for “non-aggressive” purposes is that since defensive systems create a deterrent that ultimately promotes peace, only the aggressive use of such systems will threaten their peaceful status. Given that all weapons systems are potential deterrents, this view allows states to assert that deploying arms (nuclear weapons and weapons of mass destruction excluded) on the moon and in its orbit

and trajectory constitutes a “peaceful purpose” use of the moon.⁶⁵

The reference in Article III(2) to “any other hostile act or threat of hostile act” suggests that under the Moon Agreement a peaceful use will be a non-hostile use.⁶⁶ Perhaps the most significant feature of that treaty is its articulation of the “common heritage of mankind” concept. Article XI begins with the following: “The moon and its natural resources are the common heritage of mankind.”⁶⁷ This is an important principle in the context of the management of the resources of outer space but in and of itself may not serve to restrict in any meaningful way the utilization of outer space for military purposes.

Recall that during the United Nations Conference on the Exploration and Peaceful Uses of Outer Space held in Vienna in August 1968, many important principles were formulated. The Conference drew together seventy-eight states and a large number of international organizations, reviewing a decade of space research in practical applications—communications, meteorology, navigation, and education—and practical benefits as well as economic and legal questions pertaining to international cooperation. During the discussions, the question of whether to permit military equipment and personnel in space and on celestial bodies sparked a lively but

heated debate. Several delegations, including that of the Soviet Union, initially opposed even the peaceful use of military assets on celestial bodies.⁶⁸ The United States, however, maintained that “the use of military personnel and equipment for scientific research or any other peaceful purpose should not be prohibited”⁶⁹ because military resources “played an indispensable role [in space activity] and would continue to be an essential part of future space programmes.”⁷⁰ This view was supported by the United Kingdom.⁷¹ Ultimately, the Anglo–American view prevailed. The final treaty embodied the understanding that the actual end use of a piece of equipment used in space is more important than its military origin or potential military capabilities.⁷²

Yet, at the same time it was agreed that, as previously mentioned, Article IV of the Outer Space Treaty would provide that outer space shall be “used exclusively for peaceful purposes.” However, this provision, while on first reading may appear relatively clear, is also a semantic and interpretational battleground. The impact of its ambiguity becomes clear when one considers the Reagan “Star Wars” program. It was premised on non–peaceful or aggressive uses but geared towards the purpose of defending the United States, a peaceful purpose of self–defense. It follows that “use” and “purpose” acquire a strong legal connotation. Thus, it has been argued the practical effect of Article IV of the Outer Space Treaty is that both military and non–

military applications may be deployed for peaceful purposes anywhere in space.⁷³

Whether a particular technology is permitted in space also depends both upon the intended use of the technology and whether it is to be used in the vacuum of outer space or on the surface of a celestial body, such as the moon.⁷⁴ The military origin or potential military use of a particular technology appears not to be a factor.⁷⁵ WMDs are considered aggressive and are therefore prohibited in space and on celestial bodies.⁷⁶ However, non-aggressive military uses of outer space, as opposed to celestial bodies, are not prohibited,⁷⁷ and military equipment and personnel may be used for peaceful purposes even on the moon and other celestial bodies.⁷⁸ One commentator observed that space law, including the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water (the “Limited Test Ban Treaty”),⁷⁹ the Outer Space Treaty, the Treaty on the Limitation of Anti-Ballistic Missile Systems (the “ABM Treaty”),⁸⁰ and the Moon Agreement were developed to “permit, indeed to endorse, the arms race, including the militarization of space.”⁸¹ Supporters of this militarization theory rely on a fundamental axiom of international law: “If an act is not specifically prohibited, then international law permits it.”⁸² In this regard Professor Alex Meyer notes:

Any use of space which does not itself constitute an attack upon, or stress against, the territorial integrity and independence of another State, would be “permissible.” Military maneuvers in peacetime, the use of reconnaissance satellites, the testing of weapons, the establishment of Military Orbiting Laboratories (MOLs), etc, would therefore be also permissible in Outer Space.

These activities belong to the so-called “peaceful military activities.”⁸³

In sum, the peaceful purposes provision set out in Article IV of the Outer Space Treaty has been the subject of much analytical discussion as to its scope and meaning. While there is general agreement, but not complete unanimity, among space law commentators that this is directed against non-military rather than merely non-aggressive activities, the reality has been different. It is undeniable that, in addition to the many commercial and scientific uses, outer space has and continues to be used for an expanding array of military activities. Unless concrete steps are taken to arrest this trend—which will require a significant shift in political will, particularly among the major powers of the world—it is likely that space will increasingly be utilized to further the military and strategic aims of specific countries, particularly as military and space technology continues to evolve and develop.

In this context, if one were to adopt a hard-line pragmatic (and perhaps non-legal) view of the current situation, one could suggest that the non-military versus non-aggressive debate is a redundant argument even though it represents an extremely important issue of interpretation of the strict principles set out in the Outer Space Treaty. Indeed, the focus of much discussion now centers, as it should, on issues involving the weaponization of space, as evident by the numerous United Nations General Assembly Resolutions on that issue.⁸⁴

In one sense, this assumes that the militarization of space is a given, as much as it pains international and space lawyers to admit it. Of course, this is highly troubling and flies in the face of the principles of the Outer Space Treaty. Yet, it would be naive to ignore the realities. What must be done, instead, is to understand what legal principles currently apply to any military activities in space and to provide, at least from a regulatory perspective, an appropriate framework to protect humankind from what could otherwise be unimaginable scenarios. This involves consideration of the interaction between the existing rules of international space law and the *jus ad bellum*—the international laws relating to the legal regulation of the use of force.

IV. The Intersection of the Regime on Force and International Space Law

A. USE OF FORCE IN OUTER SPACE

The United Nations Charter prohibits 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.”⁸⁵ The scope of this prohibition remains hotly contested. The prevailing view is that this provision is an absolute bar to the use of force, with the sole exceptions being self-defense (but only to the extent specified in Article 51) and authorization by the Security Council acting under Chapter VII of the United Nations Charter.⁸⁶ Under the Outer Space Treaty, while the principle of self-defense remains intact, the method of that defense is limited. A wide range of military activity, however, may still fit under the self-defense umbrella.

Of significance with regard to the use of force is the reference in Article III of the Outer Space Treaty to the United Nations Charter (including article 51) and, in particular, its express preservation of the right of states to use outer space in self-defense. Article III provides perhaps the clearest indication that the international law of war—*jus in bello*—will apply to space warfare:

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, in the interest of maintaining international peace and security and promoting international co-operation and understanding.⁸⁷

Two significant observations arise from this provision. First, Article III applies the restrictions of all international law to outer space activities (“in accordance with”). As products of “international law,” this includes both the *jus ad bellum* and the *jus in bello*.⁸⁸ As far as its principles will apply to future technologies, the laws of war have been incorporated into military space operations by virtue of the Outer Space Treaty.⁸⁹ A second observation relates to the requirement that a State’s exploration and use of outer space be “in the interest of maintaining international peace and security,” a cornerstone of the United Nations Charter.⁹⁰

The most relevant provisions of the Outer Space Treaty regarding weaponization of space are Articles IV and IX. Major Douglas Anderson noted that “Paragraph 1 of Article IV . . . is viewed by most commentators as only a limited disarmament provision.”⁹¹ Evidence that the

drafters only intended Article IV(1) to ban orbiting nuclear-type weapons is indicated by the fact that the treaty does not prohibit the stationing of land-based intercontinental ballistic missiles (ICBMs), even though their flight trajectory would take them through outer space.⁹² It is well established that the only specific limitation placed on the use of the outer void space for military purposes is that found in Article IV(1).⁹³ Professor Bin Cheng asserts that “the outer void space as such can be used for any military activity that is compatible with general international law and the Charter of the United Nations, as long as no ‘nuclear weapons or any other kind of weapons of mass destruction’ are stationed there.”⁹⁴ The practical import of this analysis is captured in Major Douglas Anderson’s observation:

Under this . . . interpretation, none of the exotic future weapons systems currently being proposed or researched by the United States would violate this provision of the Outer Space Treaty. For instance, laser beam weapons are intended to destroy their targets by delivering a high impulse shock that causes structural collapse of the rocket booster or by remaining on the target until a hole is burned through the missile . . . violations would only occur if any of the weapon systems included a nuclear explosion to propel them or as a means of destroying a target.⁹⁵

Alongside the specific reference to the restriction of only particular weapons, Article IV is the setting for much greater controversy. It provides for two separate legal regimes for military activity in outer space: (1) activity conducted on the moon and other celestial bodies; and (2) activity conducted in outer space itself. Article IV divides the extraterrestrial universe into three parts: the Earth's orbit, celestial bodies, and outer space. This then means that the Outer Space Treaty does not completely free all of outer space from military use.

By its terms, military activity, including the deployment of anti-satellite weapons (ASATs), is prohibited specifically on the moon and other celestial bodies. Outer space, as such, remains open to military activity that is non-aggressive, that is, in line with the United Nations Charter and international law, as long as such activity does not involve nuclear weapons or WMDs. Professor Bin Cheng notes that subject to the second paragraph of Article IV, "nothing in article IV(1) itself prohibits the stationing of any other type of weapons in outer space, including the moon and other celestial bodies, or in fact the use of outer space, including the moon and other celestial bodies, for military purposes in any other way."⁹⁶ Although Article IV(2) does not prohibit the non-peaceful use of outer space away from celestial bodies, such uses are nonetheless implicitly prohibited by other provisions.⁹⁷ For example, at least to the

extent that non-peaceful means the aggressive use of force, such uses are prohibited by the United Nations Charter.⁹⁸ Article IV also relates to the legal permissibility of satellite interceptors, such as the system apparently recently tested by China and the missile shield system being developed by the United States. ASATs deviate from the non-aggressive character of virtually all other satellites and, in so doing, may appear to violate the non-aggressive mandate required of all space activities under the peaceful purposes restriction.⁹⁹ One interpretation from a military officer is as follows:

[R]egardless of their putative “destabilizing” character for international peace and security, the Outer Space Treaty does not prohibit the transiting, or even the orbiting, of conventional weaponry in space, including ASATs. The prohibition on orbiting of weapons of mass destruction, including nuclear weapons, strongly suggests the distinction between those weapons, and conventional weapons of lesser destructive power, including those directed at satellites. Though Article IV(1) could easily be modified to affect the de-weaponization of space, conventional weapons are not proscribed.¹⁰⁰

From the foregoing, it can be deduced that Article IV of the Outer Space Treaty contemplates the military use of space for scientific research and grants a *carte blanche* to civilian scientific applications. The reality is that civilian applications of space capabilities, such as weather, navigation, communications, and remote sensing, are equally significant for military purposes. In addition, as a technical matter, there is no clear line between military missiles and civilian space launch vehicles, hence the difficulties caused by the dual-use satellite phenomena. Technologies used to build sophisticated weaponry are often similar or even identical to the technologies required for civilian space programs.¹⁰¹

However, this is not the extent of the problem. Just as states have been undertaking what might be termed passive military activities in outer space since the advent of space technology, outer space is increasingly being used as part of active engagement in the conduct of armed conflict. Not only is the information gathered from outer space—through, for example, the use of remote satellite technology and communications satellites—used to plan military engagement on Earth, space assets are now used to direct military activity and represent an integral part of the military hardware of the major powers.

It was during the Gulf War in 1990 that the value of space assets to the conduct of war was first utilized to a significant degree. Indeed, Operation Desert Storm was regarded as the first space war. It was recognized that the use of space technology would create an integrated battle platform to aid in the implementation of military strategies. Following the attacks of September 11, 2001, the U.S. Administration issued a landmark policy paper in which it emphasized the need for “[i]nnovation within the armed forces [which] will rest on experimentation with new approaches to warfare, strengthening joint operations, exploiting U.S. intelligence advantages, and taking full advantage of science and technology.”¹⁰²

Ballistic missiles play an increasingly important role in any sophisticated national security structure, and the development of defensive systems “is both a result of and additional factor driving” a global arms race.¹⁰³ In 2001, a commission headed by Donald Rumsfeld (who later served as United States Secretary of Defense from 2001 to 2006) suggested that an “attack on elements of U.S. space systems during a crisis or conflict should not be considered an improbable act.”¹⁰⁴ The European Union has recently identified outer space as “a key component for its European Defense and Security Policy.”¹⁰⁵ Even for smaller states such as Australia, one of the countries that very quickly voiced public concerns at the Chinese missile

test, the political exigencies of a post-September 11 world have significantly altered the landscape of national space policy, which now highlights the military and national security concerns associated with the use of outer space.¹⁰⁶

The increasing acceptance of military practices, coupled with the explicit legal encouragement for civilian endeavors in outer space, provides a strong argument that militarization of space through placement of non-nuclear and other weapons of destruction is in and of itself permissible under the space law regime. Richard A. Morgan asserts that “most experts . . . agree that the Outer Space Treaty does not prohibit ‘military use’ of space.”¹⁰⁷ He goes on to note that there is a “consensus, within the United Nations that ‘peaceful’ more specifically equates to ‘non-aggressive’”.¹⁰⁸ However, the general stance of the commentators noted by Morgan is at odds with the Conference on Disarmament’s observation in 1986 that “[n]o country should develop, test or deploy space weapons in any form.”¹⁰⁹

In sum, despite the use for peaceful purposes centerpiece of the space law regime, key provisions readily lend themselves to interpretations that would support many aspects of the militarization and weaponization of space. Thus, the matter is open and dependent on the

perspective that a state adopts, since there is a perception that the elastic nature of the international space law regime can be made to fit several (perhaps conflicting) analyses. Therefore, as previously argued, the other applicable legal regimes that also relate to the military uses and weaponization of outer space are perhaps of even greater contemporary practical relevance than the “golden peaceful purposes rule” outlined in the space treaties.

In this context, the authors now turn to consider the Limited Test Ban Treaty, whose terms focused only on prohibiting nuclear detonations in space. Little thought and attention seems to have been given to ensuring that the treaty effectively prevented space from being turned from a sanctuary of peaceful science into a battleground that may one day offer opportunities for offensive and defensive non–nuclear weapons. Indeed, it seems that was clearly not the intention of the treaty. The ban focuses exclusively on nuclear weapons, meaning that other forms of weapons such as conventional, biological, chemical, or high energy laser weapons can be deployed without breaching the treaty.¹¹⁰ In addition, to the extent that nuclear power sources operate by means other than explosion, the treaty does not prohibit their use.¹¹¹ This means that the testing and deployment of non–nuclear based ASATs and SOVs with combat capabilities are not prohibited.

The treaty gives rise to three significant implications for space warfare, as synthesized by

Major Ramey:

1. First, while the treaty prohibits all nuclear detonations in space, even those that may have value for peaceful military or scientific purposes, it does not regulate detonations of a non-nuclear nature.
2. Second, because the treaty outlaws “any nuclear weapon test explosion, or any other nuclear explosion,” it may prohibit the use of nuclear fission as a means of space propulsion.
3. Finally, the Treaty also prohibits the use of nuclear explosions for non-testing purposes as well.¹¹²

Another principal treaty, the bilateral ABM Treaty, provides that “[e]ach party undertakes not to develop, test, or deploy ABM systems or components which are sea-based, air-based, space-based, or mobile land-based.”¹¹³ Although there were no space-based ABM systems in existence when the treaty was adopted in 1972, the respective space program of each party was highly advanced, and each could foresee the use of such systems.¹¹⁴ Article XII of this treaty is

perhaps even more significant to the long-term use of space by military systems, beyond the narrower question of ABM systems. It provides:

1. For the purpose of providing assurance of compliance with the provisions of this Treaty, each Party *shall use national technical means of verification at its disposal in a manner consistent with generally recognized principles of international law.*

2. Each Party *undertakes not to interfere with the national technical means of verification of the other Party* operating in accordance with paragraph 1 of this Article.¹¹⁵

Paragraph one is significant. Although the legality of military surveillance activity in space was established in international law previous to the ABM Treaty, the treaty gave formal sanction to the practice by the two leading space-faring states. In particular, it acknowledged the legality of space-based surveillance via satellite and entrenched this as “an essential component of the international arms-control regime.”¹¹⁶

While the ABM Treaty bans missile defenses, it makes no mention of the ASAT, a

device that has been in the process of development for over 20 years. Under the ABM Treaty, “anti-satellite weapons remain unrestricted.”¹¹⁷ While no language in the ABM Treaty expressly restricts ASAT development or testing, special problems may arise because of the operational similarity between the ABM and the ASAT.¹¹⁸ The American ASAT consists of a two-stage rocket (a sensor and a war-head).¹¹⁹ The ASAT’s heat-seeking homing sensor picks up the heat of the target satellite as the ASAT travels through space, intercepting the target with the warhead then destroying it. On the other hand, the Soviet ASAT is launched by rocket into the orbit of the targeted satellite and explodes in proximity to the target, destroying the satellite.¹²⁰

Because ASAT and ABM technologies overlap, continued development of ASAT technology would in all likelihood have amounted to contravention of the ABM Treaty since Article V prohibits developing, testing, or deploying ABM systems or components. Indeed, as the United States attempted to consolidate its policy of space control through its ongoing pursuit of a national missile shield system, the United States ultimately formed the view that the development and testing of the system meant that it had little choice but to withdraw from the ABM Treaty in 2002.

Assuming ASATs will be used for ASAT purposes (i.e. destroying targeted satellites), and not for later conversion into ABMs, the ABM Treaty does not limit ASAT use.¹²¹ However, an ASAT that could be converted into an ABM might be considered an ABM system component for Article V purposes and, as a result, may violate the terms of the ABM Treaty.¹²² From a practical point of view, an aggressive ASAT deployment program could be viewed by an adversary as a mechanism to boost ABMs.¹²³ As a result, “ASATs could therefore trigger enormous buildups of offensive missiles, which are precisely what the ABM Treaty was designed to prevent.”¹²⁴ In this regard, ASATs and other SOVs with the capability to deploy ordnances from space deviate from the non-aggressive character of satellites and, in so doing, may appear to violate the non-aggressive mandate required of all space activities under the peaceful purposes restriction.

The crux of the matter is that the “Outer Space Treaty does not [explicitly] prohibit the transiting, or even the orbiting, of conventional weaponry in space.”¹²⁵ This has been seized upon by those who assert the existence of a legal right to deploy certain types of weapons systems in outer space. As Major Ramey argues:

The prohibition on orbiting of WMDs, including nuclear weapons, strongly suggests the distinction between those weapons, and conventional weapons of lesser destructive power, including those directed at satellites. Though Article IV (1) could easily be modified to affect the de-weaponization of space, conventional weapons are not proscribed.¹²⁶

Professor Ian Brownlie proposes that weapons that do not employ the force of shock waves and heat associated with more orthodox weapons may nevertheless be assimilated to the use of force on two grounds: “In the first place the agencies concerned are commonly referred to as ‘weapons’ and forms of ‘warfare’ . . . [and] the second consideration [is] the fact that these weapons are employed for the destruction of life and property.”¹²⁷

As Petras notes:

What’s more, regardless of whether a satellite is struck by an ASAT weapon (be it a nuclear burst, kinetic weapon or high-energy particle beam) or a computer virus, the effect is the same — crippling of the satellite and/or its function. Under Brownlie’s formulation then, cyber – attack on a satellite does indeed equate to

the use of armed force . . . Thus, though space weapons were not actively envisaged during the drafting of the United Nations Charter, whether a satellite is struck by an ASAT weapon or ordnances are deployed by an SOV, under Brownlie's formulation this cyber-attack would equate to the use of armed force.¹²⁸

A key issue is the matter of the use or threat of force. It is inconceivable that deployment of ASATs or SOVs would be seen as a benign activity given that they are offensive in character. Thus, under the regime on the use of force, mere deployment of this weaponry can amount to the threat of the use of force, particularly where space weaponry is hoisted to the same orbital plane as another state's space assets. This is even more so if it occurs in circumstances where the States are on a war footing or involved in a militarily volatile situation. The testing of the weapons or military maneuvers under these circumstances would compound the matter. Major Anderson offers the observation that:

All forms of military, and not only 'warlike,' uses of outer space, including defensive activities, are in conflict with the clearly established principle set forth

in Article I(1) of the Space Treaty. Nonaggressive, or defensive, uses of outer space cannot be lawful since most all existing states have agreed on that principle.¹²⁹

B. CYBER-ATTACK AS AN “ARMED ATTACK”

1. *The Use or Threat of Force Paradigm*

Under Article 2(4) of the United Nations Charter, states may neither use force in the course of their international relations nor threaten to do so. Historically, defining the precise meaning of the force prohibited by the Charter, particularly given the many sources of pressure (including economic, political, military, etc.) nations may use in their relations with each other, has always been difficult. It is widely recognized, however, that the prohibition excludes many forms of non-military physical force¹³⁰ but encompasses both direct and indirect military force. In this regard, Major Ramey notes that “[g]iven the fact that space warfare will require new application of existing legal regimes, if not new regimes altogether, new means and methods of using force will also give rise to new means of making threats, including those from space.”¹³¹

It is not difficult to conceive of scenarios where the use of armed force in space would potentially cause “harmful interference” with other states in their peaceful exploration and use of space, possibly also bringing into play the consultation requirements specified in Article IX of the Outer Space Treaty.¹³² For example, the recent Chinese “killer missile” test would have led to a significant amount of space debris from the destruction of the redundant weather satellite, which has the potential to adversely affect the space activities of other states as well as possibly giving rise to a claim for damages under the Liability Convention.¹³³

In 1995, a study for the USAF analyzing the future of air and space power reported that a combination of high radio frequency power and large antenna technology would allow for the projection of extremely high power densities and electromagnetic radiation.¹³⁴ The Report suggested that such a weapon in geo-synchronous orbit could create a six mile footprint on a battlefield, which would “blank out” all radar receivers and damage all unprotected communication sets within that area.¹³⁵ As the report shows, there are myriad activities in outer space that have the potential to meet the threshold of a threat of force. Consider, for example, the use of space assets to jam radar, military communication, and/or electronic gathering facilities. To what extent can generation of an electronic footprint that jams such facilities

crucial to military command systems be considered a use or threat of use of force within the prohibitions under international law? The matter is probably quite clear-cut in the context of hostilities, but is far from certain in non-hostile situations.

Could a country consider the deliberate blanking out of its communication systems as a military strategy of an opponent seeking to test its command systems and thus as a threat of use of force that could justify retaliatory actions such as the deployment of an ASAT, laser, or other electromagnetic weaponry? These are crucial questions, all the more so because they are of practical relevance rather than remaining in the realm of mere academic curiosity considering, for example, that USSPACECOM's long-range plan encompasses space control articulated as "the ability to ensure un-interrupted access to space for U.S. forces and our allies, freedom of operations within the space medium and an ability to deny others the use of space, if required."¹³⁶ Translated into legal terms, attempts to "ensure un-interrupted access to space" and to maintain "an ability to deny others the use of space"¹³⁷ are expressions encompassing military force or at least the threat thereof. Naturally this strategy has a number of worrying consequences, not the least of which is to encourage other major space-faring powers to focus on their own military technology in order to (attempt to) keep on par with the United States. This

has a snow-ball effect, with the tendency of the United States and other major militarized powers to ever increasingly rely on space technology, potentially spiraling into a space weapons race despite the best diplomatic efforts of the international community to prevent this. Even though the United States may currently be in a position to claim space superiority, it can only be a matter of time before other space-faring countries, perhaps China and India, will develop equally sophisticated and potentially devastating space weapons technology. Indeed, the recent Chinese test seems to indicate that we are already approaching that point.

2. *The Armed Attack Paradigm*

Perhaps the biggest question with respect to the self-defense principle embodied in Article 51 relates to the meaning of the phrase “if an armed attack occurs.” Article 51 of the United Nations Charter provides that the inherent right of self–defense is expressly linked to an armed attack.¹³⁸ A literal reading of the prohibition in the Charter, and a view that many subscribe to in denying any alleged right of pre-emptive strike or anticipatory self-defense (discussed in section (c) below), seems to preclude the right to defend with arms until an actual armed attack has occurred. Yet, as the International Court of Justice noted in the case of

Nicaragua v. United States—although in that case it was ultimately considering the customary international law position as opposed to the position under the Charter—“a definition of the ‘armed attack’ which, if found to exist, authorises the exercise of the ‘inherent right’ of self-defence, is not provided in the Charter, and is not part of treaty law.”¹³⁹

Consequently, it is necessary to determine whether a cyber-attack constitutes an armed attack justifying self-defense within the framework of Article 51. At first glance, a cyber-attack can be objectively likened to armed force. This necessitates some textual interpretation in line with the United Nations Charter to see whether this actually fits within the international regime on the use of force.

An armed attack clearly implies the use of arms or military force and constitutes an action of an offensive, destructive, and illegal nature.¹⁴⁰ Significant in this regard is the “Definition of Aggression” adopted by the United Nations General Assembly through Resolution 3314.¹⁴¹ Article 1 of that Resolution defines aggression as the “use of armed force by a State against the sovereignty, territorial integrity or political independence of another State, or in any other manner inconsistent with the Charter of the United Nations,

as set out in this Definition.”¹⁴²

To the extent that non-peaceful means the aggressive use of force, such uses are prohibited by the United Nations Charter when undertaken by a state. Article 3 of Resolution 3314 enumerates specific acts that amount to acts of aggression “regardless of a declaration of war.” The text of the Resolution makes it clear that it is intended to serve as a guide to the Security Council in determining the existence of aggression under Article 39 of the Charter and not as a definition of armed attack.¹⁴³ Nevertheless, if an armed attack is understood to be a type of aggression that justifies self-defense under Article 51—that is, “*une aggression armée*” (or “aggression which is armed”)¹⁴⁴—then the definition of aggression in the Resolution and the specific acts of aggression enumerated in Article 3 are at least illustrative of the types of circumstances where recourse to self-defense is vindicated.¹⁴⁵

It is significant, although somewhat perplexing, that the international space law regime at the same time provides both that states have a right to deploy satellites and proscribes any harmful interference with their “activities in the peaceful exploration and use of outer space.”¹⁴⁶ In this regard, the use of ASATs or Direct Energy Weapons—primarily lasers—on a State’s

satellites could either be a use of armed force by a state against the sovereignty of another state or equated with the with the use of weapons by a state against the territory of another state. It is thus clear that the cyber-attack cannot be justified as self-defense, at least in the absence of any prior action by the victim state in targeting another state's satellites. Any action absent such prior attack can itself be inferred to constitute an armed attack within the meaning of Article 51. This would at the very least include the laser blinding of satellites and certainly the deployment of hyper-velocity kinetic weapons. Of even more technical and legal uncertainty is the question of whether detonations in an orbital plane that generate Electro-Magnetic Pulse (EMP) or Van Allen radiation belts that impair the operation of satellites of a third state would constitute an armed attack.

Despite the provisions of the Outer Space Treaty prescribing the peaceful use and exploration of space, the Liability Convention recognizes the distinct possibility that States may engage in intentional damage to space objects.¹⁴⁷ The Liability Convention aims to elaborate “effective international rules and procedures concerning liability for damage caused by space objects and to ensure, in particular, the prompt payment under the terms of this Convention of a full and equitable measure of compensation to victims of such damage.”¹⁴⁸

To the extent that a hostile act in space, whether lawful or not, could harmfully interfere with a third party state's asset, Article IX of the Outer Space Treaty requires that the state must be consulted. Further, unlike other space treaties and UN resolutions that leave the timing of such consultations unclear, Article IX specifies that it must occur "before proceeding with any such activity or experiment."¹⁴⁹ This could create a disincentive to carrying out activities involving military interference with a third-party state's military objects since prior consultations with a third-party state could, by public dissemination or otherwise, constitute a *de facto* notification to the opposing belligerent state of the anticipated attack. Nonetheless, Article IX does not stand in the way of carrying through with such hostile acts once consultations have occurred, even if the third-party state objects to the anticipated activity or experiment.

A careful reading of the Liability Convention discloses that the *corpus juris spatialis* implicitly recognizes that under certain circumstances the intentional destruction of space objects might occur.¹⁵⁰ The Liability Convention subjects states' parties to absolute liability for damage caused by its space objects on the earth's surface or to an aircraft in flight¹⁵¹ and to liability based on fault for damage by its space object to the space object of another state "being caused elsewhere than on the surface of the earth."¹⁵² However Major Ramey flags the possibility that,

far from the Liability Convention being simply a matter of claim and compensation in a classical tortuous scenario, one can read into the “with intent to cause damage” phrase specified in Article VI a tacit acknowledgment that in certain instances force may be used by third states.¹⁵³

As Major Ramey notes:

Article VI provides exoneration from absolute liability in cases where either the claimant State, or the natural or juridical persons it represents, caused the damage wholly or partially by gross negligence, or an act or omission done with intent to cause damage. *A proper understanding of the phrase “intent to cause damage” provides insight into the Convention’s foresight as to the possibility of uses of force against space objects. Thus the Liability Convention is likely to have only a tangential relationship to the regulation of space warfare a role in regard to space warfare.*¹⁵⁴

C. ANTICIPATORY SELF-DEFENSE AND WMDs—A NEW CALCULUS

In the *Nicaragua Case*, the International Court of Justice was faced with the need to supplement the Charter *jus ad bellum* provisions with the corresponding principles of customary

international law.¹⁵⁵ Indeed, the Court was precluded from considering the United States' obligations under the United Nations Charter by virtue of that country's restrictions to its acceptance of the Court's jurisdiction under Article 36(2) of the Statute of the International Court of Justice.¹⁵⁶ Traditionally, the customary international law principles associated with self-defense stemmed from circumstances where the defending state was not required to "absorb the first hit." Instead, the doctrine of anticipatory or pre-emptive self-defense, as developed historically, only required a clear and imminent danger of attack. The question is whether anticipatory self-defense is currently recognized at customary international law, particularly considering that the United Nations Charter seemingly discounts the notion. However, the matter is not that simple in light of the split between the restrictionist and counter-restrictionist views of anticipatory self-defense referred to earlier.

It is contended by some commentators that the right to respond with force in self-defense, even to a triggering act that has already occurred, is temporally limited. As the Caroline incident indicated, the emergence of the customary right of self-defense apparently involved a requirement of immediate action. Were the position otherwise, there would be a strong argument the use of force is nothing more than a reprisal, which, while perhaps permitted under limited

circumstances by customary international law, is prohibited by the United Nations Charter. Perhaps, particularly bearing in mind the responsibility of an attacked state to first determine without doubt who was responsible for the attack, the temporal limitation associated with an act of self-defense has become more of a balancing exercise. An indication of this development is the recent decision of the International Court of Justice in the *Oil Platforms Case*, where the requirement of immediacy was not specifically emphasized as a necessary pre-requisite to a lawful act of self-defense in every case.¹⁵⁷

Looked at from another viewpoint, it could be asserted that this previously narrower technical interpretation ignores the fact that international law cannot compel any state to wait until it absorbs a devastating or lethal first strike before acting to protect itself. Strategic circumstances and the consequences of surprise attacks have changed a great deal since the Caroline incident. Today, in an age of chemical/biological/nuclear weaponry, the time and capability available to a vulnerable state could be very limited indeed.

How long can a country afford to wait when innovations in technology now point to a situation where a surprise attack may be preceded by an elaborate tactical scheme that jams

military communications and blinds satellites, thus crippling the state's intelligence gathering, early warning and battlefield capabilities? Some scholars believe that a right of truly anticipatory self-defense has emerged outside of Article 51 in light of the availability of WMDs.¹⁵⁸ Professor Thomas Franck, in discussing WMDs in the context of terrorism, presents a position that is equally applicable to the emergence of a viable doctrine of anticipatory self-defense and, in the authors' views, also to space weaponization: "the transformation of weaponry to instruments of overwhelming and instant destruction . . . [brings] into question the conditionality of art 51, which limits states' exercise of the right of self-defense to the aftermath of an armed attack. Inevitably, first-strike capabilities begat a doctrine of 'anticipatory self-defence.'"¹⁵⁹ Professor Christopher Greenwood weighs in—also along the terrorism continuum but once again with resonance to the weaponization of outer space—with the observation that in a nuclear age, it is the potentially devastating consequences of prohibiting self-defense unless an armed attack has already occurred that leads one to prefer the interpretation permitting anticipatory self-defense. He argues that this

accords better with State practice and with the realities of modern military conditions than with the more restrictive interpretation of Article 51, which would

confine the right of self-defence to cases in which an armed attack had already occurred—although it has to be said that, as a matter of simple construction of the words alone, another conclusion might be reached.¹⁶⁰

Perhaps the specific prohibition relating to WMDs in Article IV of the Outer Space Treaty may further strengthen the rights of a state vulnerable to an attack by such weapons in space. In any event, the arguments above are persuasive, particularly when one considers that, shortly after the birth of the United Nations Charter, the Atomic Energy Commission (AEC) suggested in its First Report in December 1946 that preparation for atomic warfare in breach of a multilateral treaty or convention would, in view of the appalling power of the weapon, have to be treated as an “armed attack” within Article 51 of the United Nations Charter.¹⁶¹ Specifically, the AEC made the following recommendations to the United Nations Security Council about the control of nuclear energy and nuclear weapons: “The development and use of atomic energy are not essentially matters of domestic concern of the individual nations, but rather have predominantly international implications and repercussions.”¹⁶²

The impact of WMDs on the modern self-defense principles appears to be the basis upon

which some commentators have concluded that a doctrine permitting certain anticipatory self-defense actions is available to states.¹⁶³ True anticipatory self-defense would permit the use of force “[i]f a state has developed the capability of inflicting substantial harm upon another, indicated explicitly or implicitly its willingness or intent to do so, and to all appearances is waiting only for the opportunity to strike.”¹⁶⁴

The authors contend that these emerging practical realities pointing to the assertion by an increasing number of states of a right of anticipatory self-defense are also relevant to emerging outer space military technologies and capabilities, bringing into play the requirements encapsulated in Article IX of the Outer Space Treaty. As previously mentioned, that provision relates to a state’s duty in non-hostile situations to engage in “international consultations” prior to engaging in activities that the state “has reason to believe . . . would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space. . . .”¹⁶⁵

V. Concluding Remarks

The legal regulation of humankind’s activities in outer space poses some difficult

dilemmas. On the one hand, it calls for specialized and specific rules to address the unique characteristics of outer space, which are, of course, very different from the terrestrial environment. As a result, as the United Nations has itself recognized,

[a]s is appropriate to an environment whose nature is so extraordinary, the extension of international law to outer space has been gradual and evolutionary—commencing with the study of questions relating to legal aspects, proceeding to the formulation of principles of a legal nature and, then, incorporating such principles in general multilateral treaties.¹⁶⁶

On the other hand, in the face of the significant advances in space technology—including the development of space weaponization systems—that have left the legal principles lagging behind, we should strongly champion the position that international space law is not a legal system independent from the law that governs on earth and that important terrestrial legal principles intended to promote peace and security should also be applicable.¹⁶⁷ As Stacey Lowder observed, “[s]ince its beginning, international law has adhered to no intrinsic geographical limits.”¹⁶⁸

Indeed, the terms of the Outer Space Treaty, reflecting three significant General Assembly resolutions from the 1960s, support the position that ground rules must be observed in the exploration and the use of outer space, particularly in the absence of specific space law rules.¹⁶⁹ These rules include the *jus ad bellum* principles regulating the use of force as well as the *jus in bello* principles that reflect the laws and customs of war. Respect for both of these sets of principles is absolutely vital to the safety and security of humankind as well as the interests of future generations.

Yet the combination (and culmination) of these two approaches to the legal regulation of outer space—specific rules as and when agreed by the international community and the translation of principles developed for terrestrial regulation to outer space—still leaves much room for uncertainty and exploitation for military and strategic purposes. As a result, if we are to avoid grey areas in the law, it is necessary to develop specific and clear rules and standards that categorically sanction the weaponization of all of outer space as well as the engagement in any form of conflict in the region of space and against space assets.

This may require additional space law regulation directly applicable to armed conflict and

the use of force involving space technology. As part of these new rules, clear definitions need to be developed for concepts such as “space weapons,” “peaceful purposes,” and “military uses.” Moreover, the fundamental issue of where space begins should be definitively resolved so as to counter any arguments that outer space is, in fact, an area akin to the territory of a state for the purposes of national security. Above all, in developing these new rules, we need to adhere strictly to the collective humanity principles of space law in order to avoid the possibility of alternate scenarios too frightening to contemplate.

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1. In voicing its dismay at the test, a spokesperson for the United Kingdom Government was reported to have said:

We don't believe that this does contravene international law. What we are concerned about, however, is lack of consultation and we believe that this development of this technology and the manner in which this test was conducted is inconsistent with the spirit of China's statements to the UN and other bodies on the military use of space.

Ewen MacAskill, Michael White & Brian Whitaker, *Western Protests Flood in over Chinese Satellite Killer*, THE GUARDIAN, Jan. 20, 2007, at 18.

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2. BBC News, *China Confirms Satellite Downed*, BBC NEWS ONLINE (2007),
<http://www.bbc.co.uk>.
 3. Ian Traynor, *Czechs Give Go-Ahead for U.S. 'Son of Star Wars,'* THE GUARDIAN, Jan. 22, 2007, at 14.
 4. Colin L. Powell, Secretary of State, U.S. Department of State, *Statement on the Achievement of the Final Reductions under the START Treaty* (2001),
<http://www.state.gov/secretary/former/powell/remarks/2001/dec/6674.html>.
 5. Treaty on the Limitation of Anti-Ballistic Missile Systems, U.S.-U.S.S.R., art. V, May 26, 1972, 23 U.S.T. 3462, (emphasis added) [hereinafter ABM Treaty].
 6. *Id.*
 7. John Diamond, *Missile Pact on Brink: U.S. Says Imminent Testing May Violate ABM Treaty*, CHICAGO TRIBUNE, July 13, 2001, at 1.
 8. Mark Wade, *China*, ENCYCLOPEDIA ASTRONAUTICA,
<http://www.astronautix.com/articles/china.html> (last visited May 17, 2006).
 9. Leonard David, *Pentagon Report: China's Space Warfare Tactics Aimed at U.S.*

Supremacy (2003), http://www.space.com/news/china_dod_030801.html.

10. *Id.*
11. In 1998, the United States Space Command (USSPACECOM) issued its Long Range Plan outlining the U.S. military vision for control of space and developing a capacity to project force from space. The first two mission statements of USSPACECOM's Long Range Plan are identified as "space support" and "force enhancement," meaning the use of space assets to facilitate military operations of combat forces on land, sea, and air. The next two mission statements of "space control" and "force application" are more controversial, as they suggest the weaponization of space, and are most closely related to combat in a future theatre of military space operations. Overall, these four mission areas encapsulate "space control." U.S. SPACE COMMAND, LONG RANGE PLAN: IMPLEMENTING USSPACECOM VISION FOR 2020 (1998), <http://www.fas.org/spp/military/docops/usspac/lrp.toc.htm>. More significant was its sister document issued in 1999 by the U.S. Department of Defense (DoD), which expanded upon and reinforced themes raised by USSPACECOM's Long Range Plan.

Among addressing other space issues, the DoD policy states: “Purposeful interference with U.S. space systems will be viewed as an infringement on our sovereign rights. The US may take all appropriate self-defense measures, including, if directed by the National Command Authorities (NCA), the use of force, to respond to such an infringement on US rights.” DEPT. OF DEFENSE, DIRECTIVE 3100.10: SPACE POLICY (1999).

12. Agence France-Presse, Moscow, *Kremlin Voices Concern at U.S. Conventional Missile Plans* (2006), <http://www.defensenews.com/story.php?F=1767408&C=airwar>.
13. In this regard, one only need to recall Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion, 1996 I.C.J. 226, 245 (July 8, 1996) where by a majority with the President’s casting vote, the International Court of Justice, while noting that the threat or use of a nuclear weapon should comply with the requirements of international law relating to armed conflict, particularly the principles of international humanitarian law, was unable to categorically state that the threat or use of nuclear weapons would in every circumstance constitute a violation of international law.
14. North Sea Continental Shelf (F.R.G. v. Den.; F.R.G. v. Neth.), 1969 I.C.J. 3, 230 (Feb.

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- 20).
15. A Tass news agency announcement on August 27, 1957, which reported the successful test of the Soviet Inter-Continental Ballistic Missile (ICBM), also included reference to “a series of explosions of nuclear and thermonuclear (hydrogen) weapons . . . set off at great altitudes.” Myres S. McDougal, Harold D. Lasswell & Ivan A. Vlastic, *LAW AND PUBLIC ORDER IN SPACE* 389, n. 77 (1963).
 16. G.A. Res. 1348 (XIII), U.N. GAOR, 13th Sess., Supp. No. 18b U.N. Doc. A/4090 (Dec. 13, 1958).
 17. UN Charter, Jun. 26, 1945, 59 Stat. 1031, 892 U.N.T.S. 119.
 18. G.A. Res. 1721 (XVI), ¶ 1(b), U.N. GAOR, 16th Sess., 1085th plen. mtg. (Dec. 20, 1961).
 19. G.A. Res. 1962 (XVIII), ¶ 4, U.N. GAOR, 18th Sess., Supp. No. 15, 11280th plen. mtg., U.N. Doc. A/5515 (Dec. 13, 1963).
 20. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and other Celestial Bodies, Jan. 27, 1967, 18 U. S.T.

2410, 610 U.N.T.S. 205 [hereinafter Outer Space Treaty].

21. *Id.* The first “Purpose” of the United Nations specified in U.N. Charter Article 1, paragraph 1 begins with the words: “To maintain international peace and security.”
22. U.N. Charter art. 2(4) provides: “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.”
23. On March 23, 1983, President Reagan announced his decision to “embark on a program to counter the awesome Soviet missile threat with measures that are defensive.” U.S. President Ronald Reagan, *President’s Speech on Military Spending and a New Defense*, N.Y. TIMES, Mar. 24, 1983 at, A20.
24. Mary McGory, *The Stars Spoke on Capitol Hill*, WASH. POST, May 5, 1988, at 2.
25. *See, e.g.*, Iole M. De Angelis, *Legal and Political Implications of Offensive Actions from and against the Space Segment*, 45 PROCEEDINGS OF THE COLLOQUIUM ON THE LAW OF OUTER SPACE 197 (2002).
26. U.S. SPACE COMMAND, *supra note* 11, at 21.

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27. DEPT. OF DEFENSE, *supra note 11*.
28. Air Force doctrine is evolving to reflect technical and operational innovations. AIR FORCE DOCTRINE DOCUMENT 2–2.1, the Air Force’s first doctrine publication on counterspace operations, provides operational guidance in the use of air and space power to ensure space superiority. Def. Technical Info. Ctr., AIR FORCE DOCTRINE DOCUMENT 2-2.1: COUNTERSPACE (Aug. 2, 2004), *available at* http://www.dtic.mil/doctrine/jel/service_pubs/afdd2_2_1.pdf.
29. The White House, *The National Security of the United States of America*, at 30 (Sept. 17, 2002), <http://www.whitehouse.gov/nsc/nss.html>.
30. Sa’id Mosteshar, *Militarization of Outer Space: Legality and Implications for the Future of Space Law*, 47 PROCEEDINGS OF THE COLLOQUIUM ON THE LAW OF OUTER SPACE 473, 77 n.1-2 (2004).
31. The White House, *supra note 29*.
32. John P. Jumper, *Foreword to AIR FORCE DOCTRINE DOCUMENT 2-2.1: COUNTERSPACE OPERATIONS* (Aug. 2, 2004), *available at*

http://www.dtic.mil/doctrine/jel/service_pubs/afdd2_2_1.pdf.

33. *Id.*

34. *Id.*

35. *Id.*

36. *Id.*

37. U.S. DEPT. OF DEF., REPORT OF THE COMMISSION TO ASSESS UNITED STATES NATIONAL SECURITY SPACE MANAGEMENT AND ORGANIZATION (2001), *available at* <http://www.defenselink.mil/pubs/spaceintro.pdf>.

39. *Id.*

40. Outer Space Treaty, *supra* note 20; Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space, Apr. 22, 1968, 19 U.S.T. 7570, 672 U.N.T.S. 119; Convention on International Liability for Damage Caused by Space Objects, Mar. 29, 1972, 19 U.S.T. 7570, 961 U.N.T.S. 187 [hereinafter Liability Convention]; Convention on Registration of Objects Launched into Outer

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- Space, Jan. 14, 1975, 28 U.S.T. 695, 1023 U.N.T.S. 15; Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 18, 1979, 1363 U.N.T.S. 21 [hereinafter Moon Agreement].
41. G.A. Res. 1348 (XIII), ¶ 3, *supra* note 16. For an examination of COPUOS working procedures, see Michel Bourély, *The Contributions Made by International Organizations to the Formation of Space Law*, 10 J. SPACE L. 139, 143-45 (1982).
42. Sudhakar Chandrasekharan, *The Space Treaty*, 7 INDIAN J. INT'L L. 61, 63 (1967).
43. Christopher M. Petras, *Space Force Alpha" Military Use of the International Space Station and the Concept Of "Peaceful Purposes,"* 53 A.F. L. REV. 135, 155-56 (2002).
44. *Id.* at 156.
45. *Id.*
46. *Id.*
47. Gyula Gál, *"Threat or Use of Force"—Observations to Article 2 of the U.N. Charter and Article III of the Outer Space Treaty*, 17 J. SPACE L. 54, 57 (1989).
48. See Vladimir Bogomolov, *Prevention of an Arms Race in Outer Space: The*

Deliberations in the Conference on Disarmament in 1993, 21 J. SPACE L. 141 (1993)

(referring to a failed Venezuelan proposal to amend Article IV).

49. Outer Space Treaty, *supra* note 20, art. III.
50. J.E.S. FAWCETT, INTERNATIONAL LAW AND THE USE OF OUTER SPACE 39 (1968).
51. S. HOUSTON LAY & HOWARD J. TAUBENFELD, THE LAW RELATING TO ACTIVITIES OF MAN IN SPACE 73 (1970).
52. BRUCE A. HURWITZ, THE LEGALITY OF SPACE MILITARIZATION⁷² (1986). *See also* GENNADII ZHUKOV, INTERNATIONAL SPACE LAW 89 (1976) (asserting that states can lawfully use force in or through outer space in the process of self-defense).
53. Ivan A. Vlastic, *Space Law and the Military Applications of Space Technology*, in PERSPECTIVES ON INTERNATIONAL LAW (N. Jaentuliyana ed., 1995); *see also* Philip D. O'Neill, Jr., *The Development of International Law Governing the Military Use of Outer Space*, in NATIONAL INTERESTS AND THE MILITARY USE OF SPACE 169, 177 (William J. Durch ed., 1984).
54. U.N. Charter Article 51 provides, *inter alia*: "Nothing in the present Charter shall impair

the inherent right of individual or collective self-defence if an armed attack occurs against a Member of the United Nations, until the Security Council has taken measures necessary to maintain international peace and security.”

55. Daniel Goedhuis, *Some Recent Trends in the Interpretation and the Implementation of the Rules of International Space Law*, 19 COLUM. J. TRANSNAT'L L. 213, 226 (1981).
56. Outer Space Treaty, *supra* note 20, at art. IV.
57. G.A. Res. 1962 (XVIII), *supra* note 19. This provision is repeated in Outer Space Treaty, *supra* note 20, pmb. para. 2.
58. Bin Cheng, *The Legal Status of Outer Space and Relevant Issues: Delimitation of Outer Space and Definition of Peaceful Use*, 11 J. SPACE L. 89,99 (1983); *See also* Richard Morgan, *Military Use of Commercial Communication Satellites: A New Look at the Outer Space Treaty and "Peaceful Purposes"*, 60 J. AIR L. & COM. 237, 303-04 (1994).
59. *See, e.g.*, National Security Council Action No. 1553 (Nov. 21, 1956), quoted in PAUL B. STARES, *THE MILITARIZATION OF SPACE: U.S. POLICY, 1945–1984*, 54 (1988).
60. Christopher M. Petras, *The Use of Force in Response to Cyber–Attack on Commercial*

Space Systems—Reexamining “Self-Defense” in Outer Space in Light of the Convergence of U.S. Military and Commercial Space Activities, 67 J. AIR L & COM. 1213, 1253 (2002).

61. Ivan A. Vlasic, *The Legal Aspects of Peaceful and Non-Peaceful Uses of Outer Space*, in PEACEFUL AND NON-PEACEFUL USES OF SPACE PROBLEMS OF DEFINITION FOR THE PREVENTION OF AN ARMS RACE 37, 40 (Bhupendra Jasani ed., 1991).
62. *Id.*
63. Petras, *supra* note 60, at 1254.
64. John Kunich, *Planetary Defense: The Legality of Global Survival*, 41 A.F. L. REV. 119, 157–58 (1997).
65. Jonathan Halpern, *Antisatellite Weaponry: The High Road to Destruction*, 3 B.U. INT’L L.J. 167, 193 (1985).
66. Moon Agreement, *supra* note 40, art. III(2) (providing, *inter alia*, “[a]ny threat or use of force or any other hostile act or threat of hostile act on the moon is prohibited”).
67. *Id.* art. XI(1).

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68. Barry J. Hurewitz, *Non-Proliferation and Free Access to Outer Space: The Dual-Use Dilemma of the Outer Space Treaty and the Missile Technology Control Regime*, 9 HIGH TECH L.J. 211, 217 (1994).
69. U.N. GAOR, C.O.P.U.O.S., Legal Subcomm., 5th Sess., 62nd mtg., at 6, U.N. Doc. A/AC.105/C.2/SR.62 (1966) (statement by U.S. Ambassador Goldberg), reprinted in 3 MANUAL OF SPACE LAW, 59 (Nandasiri Jasentuliyana ed., 1981).
70. The U.S. delegation favored a non-restrictive approach to the use of military assets in space for peaceful purposes. See Paul Dembling & Daniel Arons, *The Evolution of the Outer Space Treaty*, 33 J. AIR L. & COM. 419, 435 (1961).
71. Hurewitz, *supra* note 68; see also Paul Dembling & Daniel Arons, *supra* note 70 (noting that the British delegation argued in favor of allowing dual-use equipment on celestial bodies).
72. Dembling and Arons, *supra* note 70.
73. JEROME MORENOFF, WORLD PEACE THROUGH SPACE LAW 226 (1973).
74. Dembling and Arons, *supra* note 70, 432–35.

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75. *Id.* at 435.
76. Outer Space Treaty, *supra* note 20, art. IV.
77. Although the Outer Space Treaty failed to delineate precisely which peaceful purposes were permissible, “one might conclude [from the Outer Space Treaty] that any military use of outer space must be restricted to nonaggressive purpose.” Dembling and Arons, *supra* note 70, at 434.
78. “The use of any equipment or facility necessary for peaceful exploration of the moon and other celestial bodies shall . . . not be prohibited.” Outer Space Treaty, *supra* note 20, art. IV(2). *See also Hearings Before the S. Comm. on Foreign Relations*, 90th Cong., 1st Sess., 81 (1967) (statement of Cyrus Vance, Deputy Secretary of Defense). “The treaty does not mean that military personnel or equipment will be excluded from space. Only weapons of mass destruction are barred from space.”
79. Opened for signature Aug. 5, 1963, 480 U.N.T.S. 43 (Oct. 10, 1963).
80. ABM Treaty, *supra* note 5.
81. MIRCEA MATTEESCO-MATTE, *A Treaty for “Star Peace” in 2 ARMS CONTROL AND*

DISARMAMENT IN OUTER SPACE 189, 190 (Nicolas Matte ed., 1987).

82. Robert L. Bridge, *International Law and Military Activities in Outer Space*, 13 AKRON L. REV. 649, 658, 664 (1979); Morgan, *supra* note 58, at 300. *See also* Case of the “S.S. Lotus” (Fr. V. Turk.), 1927 P.C.I.J. (ser.A) No. 10, (Jan. 4).
83. Bridge, *supra* note 82, at 658.
84. Refer to the numerous United Nations General Assembly Resolutions, beginning with G.A. Res. 36/99, U.N. Doc. A/RES/36/99 (Dec. 9, 1981) and culminating most recently with G.A. Res. 56/116, U.N. Doc. A/RES/59/116, (Dec. 10, 2004), which have been directed towards the prevention of an arms race in outer space. The political dimensions of this issue in the early 1980s were indicated by a split along ideological grounds on the main thrust of these resolutions. *See* NANDASIRI JASENTULIYANA, *INTERNATIONAL SPACE LAW AND THE UNITED NATIONS* 82 (1999).
85. U.N. Charter, art. 2 ¶ 4.
86. Robert A. Ramey, *Armed Conflict on the Final Frontier: The Law of War in Space*, 48 A.F. L. REV. 1, 60, 62 (2002).

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87. Outer Space Treaty, *supra* note 20, art. III.
88. Ramey, *supra* note 84, at 127.
89. For a detailed analysis of the relevance of the laws of war to the use of outer space, see Steven Freeland, *The Applicability of the Jus in Bello Rules of International Humanitarian Law to the Law of Outer Space*, in 49 PROCEEDINGS OF THE COLLOQUIUM OF OUTER SPACE (2006).
90. Ramey, *supra* note 86, at 127.
91. Douglas S. Anderson, *A Military Look Into Space: The Ultimate High Ground*, 1995 ARMY LAW. 19, 23 (1995).
92. Other WMDs not relevant to the issue of planetary defense would be biological and chemical weapons. Michael G. Gallagher, *Legal Aspects of the Strategic Defense Initiative*, 111 MIL L REV. 11, 41 (1986).
93. BIN CHENG, *STUDIES IN INTERNATIONAL SPACE LAW* 529 (1997).
94. *Id.*
95. Anderson, *supra* note 91, at 24 (“[t]he SDI provided a measure of legitimacy to many

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- ideas that were formerly seen as impossible”).
96. Bin Cheng, *The Legal Status of Outer Space and Relevant Issues: Delimitation of Outer Space and Definition of “Peaceful Use”*, 11 J. SPACE L. 89, 101 (1983).
97. Ramey, *supra* note 83, at 82.
98. *Id.*
99. *Id.* at 83.
100. *Id.* at 84.
101. Hurewitz, *supra* note 68, at 228 (“the differences relate to intentions, not capabilities”).
102. The White House, *supra* note 29.
103. Regina Hagen & Jürgen Scheffran, *International Space Law and Space Security – Expectations and Criteria for a Sustainable and Peaceful Use of Outer Space*, in 2 ESSENTIAL AIR AND SPACE 273 (2005).
104. U.S. Dep’t of Defense, REPORT OF THE COMMISSION TO ASSESS UNITED STATES NATIONAL SECURITY SPACE MANAGEMENT AND ORGANIZATION, 8 (Jan. 11, 2001), available at http://Maxwell.af.mil/au.awc/space_commission/executive_summary.pdf.

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105. Hagen & Scheffran, *supra* note 103, at 281-82.
106. For a discussion of Australia's space policy, see Steven Freeland, *Difficulties of Implementing National Space Legislation Exemplified by the Australian Approach*, in "PROJECT 2001 PLUS"—GLOBAL AND EUROPEAN CHALLENGED FOR AIR AND SPACE LAW AT THE EDGE OF THE 21ST CENTURY 65-92 (Stephan Hobe, Bernhard Schmidt-Tedd & Kai-Uwe Schrogl eds., 2006).
107. Morgan, *supra* note 58, at 303.
108. *Id.*
109. Conference on Disarmament, Final Record of the Three Hundred and Fiftieth Plenary Meeting, U.N. Doc. CD/PV.350 (1986).
110. Ramey, *supra* note 86, at 100-01.
111. *Id.* at 101.
112. *Id.*
113. ABM Treaty, *supra* note 5, art. V, para. 1. An anti-ballistic missile (ABM) is a device that can destroy an ICBM in flight. Kurt Gottfried, *A Backfiring Weapon*, N.Y. TIMES,

July 21, 1983, at A23.

114. See Glenn H. Reynolds & Robert P. Merges, OUTER SPACE PROBLEM OF LAW AND POLICY 97 (2d ed. 1997).
115. ABM Treaty, *supra* note 5, art. XII paras. 1-2 (emphasis added).
116. Reynolds & Merges, *supra* note 114, at 97.
117. Peter A. Clausen, *Courting a New Arms Race*, N.Y. TIMES, Apr. 10, 1984, at A31.
118. See Gottfried, *supra* note 113.
119. John Pike, *Anti-Satellite Weapons and Arms Control*, 13 ARMS CONTROL TODAY 1, 4 (1983).
120. *Id.*
121. Halpern, *supra* note 65, at 191.
122. *Id.*
123. *Id.*
124. Gottfried, *supra* note 113.
125. *Id.*

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126. *Id.*
127. Ian Brownlie, *INTERNATIONAL LAW AND THE USE OF FORCE BY STATES* 362 (1963).
128. Petras, *supra* note 43, at 1259.
129. Anderson, *supra* note 95, at 26.
130. Albrecht Randelzhofer, *Article 2(4)*, in *THE CHARTER OF THE UNITED NATIONS: A COMMENTARY* 116, at 112-113 (B. Simma et al. eds., 1994). While these forms of coercion may not constitute “force” under Article 2(4) of the United Nations Charter, their use may violate the general principle of non-intervention.
131. Ramey, *supra* note 86, at 61.
132. Outer Space Treaty, *supra* note 20, art. IX (providing, in part:
- If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the moon and other celestial

bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment. A State Party to the Treaty which has reason to believe that an activity or experiment planned by another State Party in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities in the peaceful exploration and use of outer space, including the moon and other celestial bodies, may request consultation concerning the activity or experiment.)

133 Article 1(a) of the Liability Convention, *supra* note 20, defines “damage” as follows:

‘loss of life, personal injury or other impairment of health; or loss of or damage to property of States or of persons, natural or juridical, or property of international intergovernmental organizations’.

134. Ivan Bekey, *Force Projection from Space*, in (unnumbered Space Applications Volume)

NEW WORLD VISTAS: AIR AND SPACE POWER FOR THE 21ST CENTURY 83, 83-84 (1995).

135. *Id.* at 85. With respect to information warfare, the report gives a number of examples:

network viruses, disinformation, memory erasures, and false signals.

136. U.S. SPACE COMMAND, *supra note* 11, at 21.
137. *Id.*
138. U.N. Charter, art. 51.
139. Military and Paramilitary Activities (Merits) (Nicar. v. U.S.), 1986 14 I.C.J. 94, 105 (Jun. 27).
140. J. NAGENDRA SINGH, USE OF FORCE UNDER INTERNATIONAL LAW 15 (1984).
141. Definition of Aggression, G.A. Res. 3314, U.N. GAOR, 29th Sess., 2319th plen. mtg., Supp. No. 31, U.N. Doc. A/9631 (Dec. 14, 1974).
142. *Id.*
143. *Id.*, at pmb., art. 6.
144. YORAM DINSTEIN, WAR, AGGRESSION, AND SELF-DEFENCE 166 (2001).
145. Randelzhofer, *supra note* 129, at 668, (asserting that “aggression” as defined in Resolution 3314 does not coincide with the notion of “armed attack” under U.N. Charter art. 5).

146. Outer Space Treaty, *supra* note 20, at art. IX.

147 Article VI(1) of the Liability Convention, *supra* note 20, provides for exoneration from absolute liability under the treaty in circumstances *inter alia* where the claimant state, or a natural or juridical person that it represents, has committed “an act or omission done with intent to cause damage’.

148. For a detailed analysis of the underlying goals of the Liability Convention as well as its principal terms, see Steven Freeland, *There’s a Satellite in my Backyard!—MIR and the Convention on International Liability for Damage Caused by Space Objects*, 24(2) U. NEW S. WALES L.J. 462, 470 (2001).

149 Outer Space Treaty, *supra* note 20, at art. IX.

150. Hurwitz, *supra* note 52, at 148-50.

151. Liability Convention, *supra* note 40, art. II.

152. *Id.* art. III.

153. *Id.* art. VI(1) (2) (providing for an exoneration from absolute liability where the damage has resulted *inter alia* “from an act or omission done with intent to cause damage on the

part of a claimant State or of natural or juridical persons it represents.” Such exoneration does not, however, apply “where the damage has resulted from activities conducted by a launching State which are not in conformity with international law including, in particular, the Charter of the United Nations and the [Outer Space Treaty]”).

154. Ramey, *supra* note 86, at 135 (emphasis added).
155. Military and Paramilitary Activities (Merits) (Nicar. v. U.S.), 1986 I.C.J. 14, 176 (June 27) ; Christine Gray, INTERNATIONAL LAW AND THE USE OF FORCE 154 (2000).
156. Statute of the International Court of Justice art. 36(2), Jun. 26, 1945, 6 U.N. Doc.

A/Conf.62/122. The Statute provides:

The states parties to the present Statute may at any time declare that they recognize as compulsory ipso facto and without special agreement, in relation to any other state accepting the same obligation, the jurisdiction of the Court in all legal disputes concerning:

- a. the interpretation of a treaty;
- b. any question of international law;

c. the existence of any fact which, if established, would constitute a breach of an international obligation;

d. the nature or extent of the reparation to be made for the breach of an international obligation.).

157. Oil Platforms (Merits) (Iran v. U.S.), 2003 I.C.J. 161, 329-34 (Nov. 6).

158. Derek W. Bowett, SELF-DEFENCE IN INTERNATIONAL LAW 191-2 (1958); *see also* Richard J. Erickson, LEGITIMATE USE OF FORCE AGAINST STATE SPONSORED TERRORISM 142-3 (1989).

159. Thomas Franck, *When, if Ever May States Deploy Military Force Without Prior Security Council Authorization?*, 5 WASH. U. J.L. & POL'Y 51, 57-8 (2001).

160. Christopher Greenwood, *International Law and the Pre-Emptive Use of Military Force: Afghanistan, Al Qaida and Iraq*, 4 SAN DIEGO INT'L L.J. 12, 15 (2003).

161. *See generally* Claud Waldock, *The Regulation of the Use of Force by Individual States in International Law*, 2 RECUEIL DES COURS 451, 498 (1952).

162. Leo Van Den Hole, *Anticipatory Self-Defence Under International Law* 19 AM. U. INT'L

L. REV. 69, 91 (2003).

163. *See, e.g.*, Erickson, *supra* note 158, at 149 (arguing that “anticipatory self–defence can be a legal justification for the use of armed force.”).
164. Michael Glennon, *The Fog of Law: Self–Defense, Inherence, and Incoherence in Article 51 of the United Nations Charter*, 25 HARV. J.L. & PUB. POL’Y 539, 552 (2002).
165. Outer Space Treaty, *supra* note 20, art IX. As a practical matter, as far as the authors are aware, no such consultation has ever been undertaken at a formal level since the adoption of the Outer Space Treaty in 1967.
166. United Nations General Assembly, *United Nations Treaties and Principles on Outer Space at v.*, U.N. Doc. ST/SPACE/11, U.N. Sales no. E. 02.I.20 (2002).
167. CHENG, *supra* note 93, at 98-100.
168. Stacey L. Lowder, *A State’s International Legal Role: From The Earth To The Moon*, 7 TULSA J. COMP. & INT’L L. 253, 256 (1999).
169. Outer Space Treaty, *supra* note 20, art. II, III and IV; International Co–operation in the Peaceful Uses of Outer Space, *supra* note 18; Question of General and Complete

Disarmament, G.A. Res. 1884, U.N. GAOR, 18th Sess., 1244th plen. mtg. Supp. No. 15,

U.N. Doc. A/5515 (Oct. 17, 1963); G.A. Res. 1962 (XVIII), *supra* note 19.