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How to cite

KILIBARDA, Pavle. The Militarization of Outer Space and the Liability Convention. In: Air & space law, 2015, vol. 40, n° 3, p. 271–290. doi: 10.54648/aila2015019

This publication URL: https://archive-ouverte.unige.ch/unige:161968
Publication DOI: 10.54648/aila2015019

The Militarization of Outer Space and the Liability Convention

Pavle KILIBARDA*

In spite of the fact that international law has proclaimed that outer space is to be used for peaceful purposes, States continue to expand their military capacity beyond the bounds of the Earth's atmosphere. Recent testing of anti-satellite weaponry is a cause for concern that the term 'peaceful uses' is losing its meaning in an increasingly militarized outer space environment. The problem certainly stems from the fact that space law does not explicitly define said uses, thereby allowing States to provide a legal justification for their actions. This article will examine existing space law, as well as general international law, in an attempt to flesh out a more substantial meaning for the most oft-abused provisions of the relevant treaties in three distinct sections: first, we shall explore the notion of 'peaceful uses' as a general term; we shall proceed with an analysis of the prohibition of stationing weapons of mass destruction (WMDs) in outer space; finally, we shall see how the Liability Convention may be read as limiting States' potential advantages from militarizing space.

1 INTRODUCTION

The branch of international law known as international space law is a modern creation birthed by the technological competition of the Cold War. Prompted by the constant struggle of the then-superpowers to outdo one another, space law was a uniquely progressive achievement that developed over a short span of time, all the while expected to deal with situations that were often purely theoretical. It was therefore natural that there remained, in the regime of international space law, a number of ambiguities and lacunae in crucial matters such as the regime of private property in outer space and on celestial objects, the question of fair and equitable exploitation of the resources present there and, most importantly, the issue of militarizing outer space.

As noted by Julie Dahlitz, a researcher at the Australian National University, 'Space is already partly militarized'.[1] This is not necessarily so because great powers have deployed futuristic high-tech weapons systems into Earth orbit – the

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1 J. Dahlitz, 'Arms Control in Outer Space' (1982) 38 The World Today 154, 154.

Kilibarda, Pavle. 'The Militarization of Outer Space and the Liability Convention'. *Air & Space Law* 40, no. 3 (2015): 271–290.

process has been conducted in a way that is more subtle and not readily apparent. Although the system of space law treaties never defines what actually constitutes 'outer space', it is usually taken to start at about '100 km above the earth's surface, being the approximate altitude where objects are capable of completing at least one orbit in uncontrolled ballistic flight'.[2] As noted by an early commentator on the work of the UN Ad Hoc Committee on the Peaceful Uses of Outer Space in 1959, 'The difficult question of determining the height at which space begins was among those topics not considered as urgent by the Committee.'[3] Indeed, the question was subsequently never addressed by either the UNGA Principles or any of the treaties adopted under the auspices of the UN. For the time being, therefore, most scholars seem content to accept the 100 km standard, although it should be noted that there has not been a lack of dissenting opinion in this regard.[4]

This demarcation is extremely relevant as, in the words of Julie Dahlitz, 'The trajectories of [...] intercontinental ballistic missiles (ICBM) and fractional orbital bombardment systems (FOBS) intrude into this area.'[5] Furthermore, 'The altitudes of military satellites range from some 100-150 km [...] to the geostationary orbit of some 35,000 km.'[6]

As the so-called peaceful uses of outer space represent an oft-mentioned phrase in the vocabulary of an international lawyer, it is not surprising that most would take them with a grain of salt. If there is indeed a legal obligation that outer space be reserved for peaceful purposes, how is this to be reconciled with its encroaching militarization?

2 THE PEACEFUL USES OF OUTER SPACE

In the words of Allan Rosas, 'It is difficult to interpret the [Outer Space] Treaty as prohibiting all military activities in outer space, notably in orbit around the earth.'[7] Apart from a specific regime concerning weapons of mass destruction (WMD), the case for a comprehensive prohibition on the military uses of outer space and celestial objects, where 'military' is understood as potentially hostile to other States

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2 *Ibid*.

3 C. Horsford, 'Current Aspects of Space Law' (1964) 27 The Modern Law Review 50, 50.

4 According to Crane, 'Soviet scholars were careful not to commit the Soviet Union on any position on the vertical limits of airspace in terms of miles […] they were careful not even to depart from the traditional phraseology of the early 20th century, which recognized only two layers of air, the troposphere and the stratosphere'; R.D. Crane, 'Soviet Attitude Toward International Space Law' (1962) 56 AJIL 685, 688.

5 Dahlitz, *supra n.* 1.

6 A. Rosas, 'The Militarization of Space and International Law' (1983) 20 Journal of Peace Research 357, 357.

7 *Ibid.*, 359.

or organized armed groups, does not seem very strong. For example, when on 11 January 2007 the People's Republic of China launched a ballistic missile against one of its aging weather satellites of the *Fēngyún* series, the move was widely condemned by other States as ill-advised, inconsistent with the spirit of international cooperation and posing a threat to both the environment and the orbital operations of other nations.[8] It must however be noted that the official statements of other states rarely raised any sort of objection under international law, if they referred to it at all. In fact, the Chinese test had allegedly been done in response to the United States' own plans to create its anti-ballistic missile defence.[9]

The apparent lack of legal concern regarding this military use of outer space may be attributed either to a genuine lack of legal norms prohibiting such operations by States or hesitation on their part to give up on what may well someday become new grounds for achieving or maintaining a position of superiority in international relations. The overall feelings of the international community (or at least those nations that possess space-faring capabilities) may perhaps best be summed-up in the words of the British PM's spokesperson in reaction to the incident: 'We are concerned about the impact of debris in space and we expressed that concern [...] We don't believe that this does contravene international law.'[10]

Therefore, even if the treaties can be interpreted in such a manner as envisioning a prohibition of the above practice, what would the point be of reading them thus if very few governments in the world – none of which are relevant players in this regard – would be willing to accept the new interpretation?

Certainly the situation would not be unheard of, although in such cases there would necessarily have to be a judicial context for the interpretation to be taken seriously. For example, in a very recent decision in the case of *William Samoei Ruto and Joshua Arap Sang,* an ICC Trial Chamber set off into uncharted waters by deciding, after a very long and not altogether persuasive reading of several ICJ decisions on the notion of 'implied powers', that the Rome Statute enabled the Court to compel a witness to attend, something which is not obviously provided for by the Statute. Likewise, more than a few States were, and still are, vehemently opposed to the Human Rights Committee's practice on the question of the extraterritorial application of the International Covenant on Civil and Political Rights, based on a strained reading of the Article 2(1) phrase that each Party

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8 B. Nicholson, 'World Fury at Satellite Destruction' The Age (Melbourne 20 Jan. 2007) <http://www.theage.com.au/news/national/fury-at-space-destruction/2007/01/19/1169095981210.html> accessed 29 Apr. 2014.

9 *Ibid*.

10 Staff Writers, 'Britain Concerned by Chinese Satellite Shoot-Down' AFP (London 19 Jan. 2007) <http://www.spacewar.com/reports/Britain_Concerned_By_Chinese_Satellite_Shoot_Down_999.html> accessed 29 Apr. 2014.

undertakes to respect the Covenant with respect to 'all individuals within its territory and subject to its jurisdiction' as being, in fact, disjunctive. Admittedly, the situation is quite different when it comes to international space law, where similar jurisprudence or at least the practice of a treaty body simply does not yet exist.

Let us however turn to the Outer Space Treaty, which entered into force in 1967 and may be considered the basic text of international space law. With over 100 States parties it is the most widely ratified instrument of space law. As it is based upon principles adopted unanimously by the UNGA, it may be said to embody existing customary law.[11]

The treaty does not provide an explicit prohibition on the military uses of outer space. The preamble does indeed recall UNGA Resolution 1962 (XVIII), which posits that 'the exploration and use of outer space shall be carried on for the benefit and in the interests of all mankind'[12] and 'the activities of States in the exploration and use of outer space shall be carried on in accordance with international law, including the Charter of the United Nations, in the interest of maintaining international peace and security and promoting international cooperation and understanding'.[13] The principle of international cooperation is also embodied in Article I of the Outer Space Treaty, which requires that 'the exploration and use of outer space […] be carried out for the benefit and in the interest of all countries […] and shall be the province of all mankind'.[14] While this may mean nothing more than a prohibition of actively preventing other States from developing space-faring and similar capacities (developing States are mentioned explicitly), it may prove to be of greater value in interpreting the treaty than is readily apparent.

The term 'peaceful uses' does not appear in any substantive article except for Article IV, section 2, concerning the Moon. It appears in the preamble ('recognizing the common interest of all mankind in the progress of exploration and use of outer space for peaceful purposes') and the same sentence appears in the preamble of the above-mentioned UNGA Res 1962 (XVIII). Article 6 of the Resolution requires that the 'exploration and use of outer space […] be guided by the principle of cooperation and mutual assistance […] with due regard for the

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11 'It may not be excluded that some customary law has developed in the relatively short historical period since 1957. This appears to be true for the essential principles of the Outer Space Treaty which have been accepted by all States active in outer space by practice and with *opinio iuris* after ratification, and where no evidence of dissenting practice of non-ratifying States is available.' P. Malanczuk, *Akehurst's Modern Introduction to International Law* (7th rvd edn, Routledge, 1997) 206.

12 UNGA Res 1962 (XVIII) (13 Dec. 1963), 'Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space' [hereinafter: UNGA Declaration], Preamble.

13 *Ibid.*, Art. 4.

14 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies (adopted 19 Dec. 1966, entered into force on 10 Oct. 1967) 610 UNTS 205 [hereinafter: Outer Space Treaty], Art. I.

interests of other States'.[15] These principles, aside from being relevant for the interpretation of the Outer Space Treaty via its preamble, could very well constitute customary law unto themselves, as they were adopted by consensus.

A very relevant substantive provision is, of course, Article I of the Outer Space Treaty, which requires the carrying-out of 'the exploration and use of outer space […] for the benefit and interests of all countries'.[16] Another relevant and very lengthy provision is Article IX, the first sentence of which deserves to be quoted here in its entirety:

> In the exploration and use of outer space, including the Moon and other celestial bodies, States Parties to the Treaty shall be guided by the principle of cooperation and mutual assistance and shall conduct all their activities in outer space, including the Moon and other celestial bodies, with due regard to the corresponding interests of all other States Parties to the Treaty.[17]

The phrase 'all their activities' certainly catches the eye. If we presume that the Treaty is not only applicable in peacetime – which is a sensible, if rebuttable presumption – then there can be little doubt that this would also include military uses, and it is hard to imagine how these should be in line with the principle of 'cooperation and mutual assistance and […] due regard to the corresponding interests of all other States Parties', but also with Article III's requirement that said activities be 'in the interest of maintaining international peace and security and promoting international cooperation and understanding'.[18]

In order to interpret these provisions, one must turn to the general rule on the interpretation of treaties as contained in Article 31(1) of the Vienna Convention on the Law of Treaties, which states that 'a treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context in the light of its object and purpose'.[19]

In all honesty, this rule, while perhaps second-to-none in the tool-kit of treaty interpretation, may be used to achieve different, if not contradictory results and, as noted by a prominent scholar, 'Most of the terms in this Article in turn lend themselves to interpretation.'[20]

Here, however, the 'object and purpose' of the Treaty, as espoused in its preamble but also in UNGA Resolution 1962 (XVIII), requires the use of outer space be done only for peaceful purposes. Bearing all of the aforementioned in mind, it might be said that, for all intents and purposes, the Outer Space Treaty

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15 UNGA Declaration, Art. 6.
16 Outer Space Treaty, Art. I.
17 *Ibid.*, Art. IX.
18 *Ibid.*, Art. III.
19 Vienna Convention on the Law of Treaties (adopted 23 May 1969, entered into force on 27 Jan. 1980) 1155 UNTS 331, Art. 31(1).
20 A. Clapham, *Brierly's Law of Nations* (7th edn, Oxford University Press, Oxford, 2012), 354.

does indeed envision that outer space shall be reserved for 'peaceful uses' and it would seem that Chayes, Chayes and Spitzer are correct in stating that, 'Unlike the high seas, which since Salamis and Actium have been the arena of decisive military engagements, the exploration and use of space is to be "for peaceful purposes".'[21]

But do these 'peaceful purposes' truly exclude any military activity in outer space? For if they do, what is the relevance of Article IV, section 2 of the Outer Space Treaty, detailing a specific regime for the Moon, where the prohibition is indeed worded in very precise terms?

All of the great space-faring nations have consistently employed 'reconnaissance satellites', usually referred to as spy satellites. While their function as such is not directly aggressive, the information they provide plays a key role in modern armed conflicts. However, the very same satellites are used for observing the natural environment, scientific research in space, etc. According to Kupperberg, 'Chances are the report featured on your local television station includes satellite maps of the country that illustrate with moving pictures the approach and severity of storm systems.'[22]

'The United States has always taken the position that such "passive" military uses are compatible with a doctrine of peaceful purposes',[23] say Chayes, Chayes and Spitzer. These 'passive' uses include reconnaissance, surveillance, early warning and communications. The authors recount how the original draft of the Treaty included a provision proposed by the Soviet Union explicitly prohibiting observation satellites, which was rejected by the US and its allies; they conclude that 'It is clear from this history that reconnaissance and other "passive" military satellites are not prohibited by the Outer Space Treaty.'[24]

Therefore, either defensive use may be considered somehow in line with peaceful purposes or it may not and would therefore be contrary to, at the very least, Articles I, III and IX of the Outer Space Treaty. The key concern, following an analysis of the provision of the Treaty, is whether or not these uses are in the 'benefit and interest of all countries' and 'in the spirit of cooperation'. Thus, while National Missile Defence may be legitimate as self-defence in line with international law and the UN Charter, encroaching upon other States' legitimate interests by striving to eliminate their own retaliatory capacity would certainly not be in line with these requirements even where the UN Charter has nothing to say

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21 A. Chayes, A. Handler Chayes & E. Spitzer, 'Space Weapons: The Legal Context' (1985) 114 Daedalus 193, 195–196.

22 P. Kupperberg, *Spy Satellites* (1st edn, The Rosen Publishing Group, New York, 2003) 6–7.

23 Chayes, Chayes & Spitzer, *supra n.* 22, 196.

24 *Ibid.*, 196–197.

about it at all. Even in times of war, therefore, striking at hostile satellites where this is not necessary in the interests of self-defence might constitute a violation of international space law.

Certainly the state of the law is still very ambiguous on this issue. Although States have generally been reluctant to accept any limits on their military capacity that they might deem unnecessary in light of their prevailing interests, it would be incorrect to say that there haven't been voices raised to the contrary. On its eighty-first plenary meeting in 1992, the UN General Assembly adopted its Prevention of an Arms Race in Space Resolution (A/RES/41/51), which, bearing in mind that 'the legal regime applicable to outer space by itself does not guarantee the prevention of an arms race in outer space',[25] reaffirmed 'the importance and urgency of preventing an arms race in outer space and the readiness of all States to contribute to that common objective'.[26] While this resolution does not really have a lot of substance in terms of the law, it is important as it does highlight the concerns of many States – great powers included – that outer space is becoming, and ought not to become, grounds of military confrontation. Another notable case is certainly paragraph 40 of the 2014 Fortaleza Declaration of the sixth BRICS Summit:

> Reaffirming our will that the exploration and use of outer space shall be for peaceful purposes, we stress that negotiations for the conclusion of an international agreement or agreements to prevent an arms race in outer space remain a priority task of the Conference on Disarmament, and welcome the introduction by China and Russia of the updated draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects.[27]

While statements such as these are to be commended, their basic problem is that, while recalling the necessity of additional legislation, they also serve to highlight the deficiencies of the existing one. In fact, whatever the legal value of either the UNGA Resolution or the BRICS Declaration, far from denouncing the efforts to militarize outer space as illegal, they seem to accept it as being in fact quite acceptable, if not actually desirable.

However, international space law does envision a special regime for the Moon and other celestial bodies; we shall discuss it in the following section.

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25 UNGA Res 47/51 (9 Dec. 1992), 'Prevention of an arms race in outer space', Art. 2.
26 *Ibid.*, Art. 1.
27 Fortaleza Declaration of the VI BRICS Summit, adopted on 15 Jul. 2014, para. 40.

3 THE PROHIBITION ON THE USE OF WEAPONS OF MASS DESTRUCTION IN OUTER SPACE

Prohibiting nuclear weapons designed for use from outer space seems to have been an on-and-off priority for the superpowers of the Cold War and their relationship was marked by fluctuations between such moments of enlightenment as the Anti-Ballistic Missile Treaty which reaffirmed the dangers of disturbing the balance of mutually assured destruction on the one hand, and, on the other, constant unwise attempts at eliminating the other side's retaliatory capacity.

There are several different ways WMD (as well as other weapons) may be used or deployed in a way relevant to space law: they may be fired from one space object against another (space-to-space), from the Earth's surface or that of another celestial body against an object in space (surface-to-space) and vice versa (space-to-surface) and, finally, they may be used between ground-based targets but their trajectory may intrude upon the legal boundaries of outer space (surface-to-surface).

Article IV states that 'States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other WMD, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.'[28] Section 2 of Article IV concerns the Moon and other celestial bodies, for which it states that they shall be 'used […] for exclusively peaceful purposes'[29] and prohibits, *inter alia,* the establishment of military bases and installations, weapons testing or the conduct of military manoeuvres on these bodies.

The very first problem to come to mind with the wording of section 1 are the terms 'place, install or station', all of which signify both a certain degree of permanence in the action as well as an element of purpose (the latter is especially relevant in terms of nuclear-propelled spacecraft, which could end up being used for aggressive purposes, but this is the subject of a separate UNGA Resolution[30]). The French text uses the terms '*mettre, installer* and *placer*', which do not seem to differ significantly from the English text; the same is true for Russian ('*выводить, устанавливать, размещать*') and Spanish ('*colocar* and *emplazar*'). The authentic texts not containing any significant difference in the wording of Article IV, there is little room for an expansive interpretation.

It therefore comes down to examine what 'placing, installing or stationing' actually mean. According to Rosas, 'It should be noted moreover that the Treaty

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28 *Ibid.,* Art. IV(1).
29 *Ibid.,* Art. IV(2).
30 UNGA Res 47/68 (14 Dec. 1992), 'Principles Relevant to the Use of Nuclear Power Sources in Outer Space'.

only prohibits the *stationing* of [weapons of mass destruction] in space, not their testing, development or deployment on earth nor perhaps even the deployment of ground-based nuclear systems designed for use against space objects.'[31] Julie Dahlitz reads Article IV as follows: 'This formulation does not outlaw the presence of weapons in space, provided they are not weapons of mass destruction or, being other weapons, that they are not stationed on the moon or other celestial bodies […] the terms of this Treaty do not forbid either weapons in orbit or projected into space periodically.'[32]

It is clear from the differing regime of sections 1 and 2 that the unequal treatment accorded to outer space and celestial bodies was the intentional product of great power politics: 'The reason […] generally was to accommodate nuclear ballistic missiles […] A major portion of the trajectory of such missiles is in outer space, but they do not go into orbit.'[33] A plain reading of the text of section 1 clearly does not allow us to consider such trajectory as constituting 'stationing' and it is clear that surface-to-surface deployment of WMD is not prohibited under space law; while certain types of weapons remain specifically prohibited under international law, rendering their use in outer space illegal as well, the same may unfortunately not be said of nuclear weapons. Space-to-surface deployment, however, is obviously covered by this article.

First, it is hard to fathom any type of positioning of WMD in outer space that could not be deemed 'placing, installing or stationing in any other manner'. This is a comprehensive prohibition covering all types of WMD. Second, the prohibition of using the Moon for military purposes is very clear. Let us now examine this section, which reads as follows:

> The Moon and other celestial bodies shall be used by all States Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military manoeuvres on celestial bodies shall be forbidden. The use of military personnel for scientific research or for any other peaceful purposes shall not be prohibited. The use of any equipment or facility necessary for peaceful exploration of the Moon and other celestial bodies shall also not be prohibited. [34]

The obligation to use the Moon and other celestial bodies 'exclusively for peaceful purposes' is the key element of this provision – what follows is merely exemplary. The sole exception to the prohibition mentioned in Article IV, which is the use of military personnel for scientific research or other peaceful purposes, stands *a contrario* to the rest of the provision and it seems we can make a case that,

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31 Rosas, *supra* n. 6, 359.
32 Dahlitz, *supra n.* 1, 155.
33 Chayes, Chayes & Spitzer, *supra n.* 22, 196.
34 Outer Space Treaty, Art. IV(2).

in light of the general prohibition, that which is not allowed for specifically remains otherwise prohibited. This provision clearly prohibits not only the stationing of WMD on the Moon, but also their use against targets on the lunar surface.

A very important development in this regard is the 1979 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (the Moon Agreement), which in Article 3(1) reiterates the exclusively peaceful uses of the Moon (the preamble recalls the desire of the states parties 'to prevent the Moon from becoming an area of international conflict'[35]) and states very precisely in 3(2) that:

> Any threat or use of force or any other hostile act or threat of hostile act on the Moon is prohibited. It is likewise prohibited to use the Moon in order to commit any such act or to engage in any such threat in relation to the Earth, the Moon, spacecraft, the personnel of spacecraft or manmade space objects.[36]

And with special regard to WMD (Article 3(3)):

> States Parties shall not place in orbit around or other trajectory to or around the Moon objects carrying nuclear weapons or any other kinds of weapons of mass destruction or place or use such weapons on or in the Moon.[37]

The main problem with using the Moon Agreement as a source of this rather comprehensive prohibition is its general lack of acceptance. According to an article by Michael Listner, 'In the realm of international space law, the Moon Treaty is considered failed international law that will have little if any bearing on the future of space exploration and space exploitation.'[38] As of May 2014, there are a scant sixteen States Parties to the Agreement, none of which are major space-faring nations. But a closer examination of the reasons for the Moon Agreement's apparent failure is still warranted.

According to Glenn Harlan Reynolds, Professor of Law at the University of Tennessee-Knoxville, the main reason for the Treaty's disappointing success lies in its economic provisions – specifically, the ones proposing the establishment of an international regime for the exploitation of the Moon's natural resources: 'This means that any effort to develop resources would require the consent of all

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35 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies (adopted 5 Dec. 1979, entered into force on 11 Jul. 1984) 1363 UNTS 3 [hereinafter: Moon Agreement], Preamble.

36 *Ibid.*, Art. 3(2).

37 *Ibid.*, Art. 3(3).

38 M. Listner, 'The Moon Treaty: It Isn't Dead Yet' The Space Review (19 Mar. 2012) <http://www.thespacereview.com/article/2047/1> accessed 10 Aug. 2014.

nations, a process that would be slow, cumbersome and prone to blackmail.'[39] He notes similar concerns with regard to the ban on property rights and the proposed international regime itself. Summarizing the United States' Senate's reasons for rejecting the Agreement, he concludes by stating that, 'The Moon Treaty could pose a serious barrier to space development' and, 'It's up to us to keep that from happening.'[40]

Regardless of the validity of the Senate's objections to the Moon Agreement's regime – which should well-enough be the object of serious analysis in its own right – it would seem that they have little to do with the development of the law on militarization. Whatever may be said of the treaty's validity, it is quite certain that such a treaty, which had been unanimously supported by the UNGA, does indeed have relevance in terms of clarifying some issues concerning the meaning of Article IV(2) of the Outer Space Treaty, especially considering the fact that Article 3 of the Agreement was never really contested. However, Article IV(1) of the Outer Space Treaty is not the only treaty provision *en général* to be of relevance when it comes to nuclear weapons in outer space as such. Disarmament law is particularly interesting in this regard. For example, both the United States and the Soviet Union conducted tests of nuclear weapons in the period between 1958 and 1962. The US HARDTACK-Teak and HARDTACK-Orange represent the largest exo-atmospheric nuclear explosions in history, causing widespread communications breakdown in the Pacific and nuclear fallout from the Earth's atmosphere. According to a Los Alamos researcher who participated in the tests:

> Ionization caused by the high-altitude events caused degradation of radio communications over large areas of the Pacific. The most severe effects occurred after the Teak and Orange events […] both the actual debris cloud and the associated gamma-ray effects were sources of serious communication blackouts in the South Pacific, New Zealand and Australia [...][41]

The dangerous nuclear fallout presented a threat not merely to communications and the natural environment, but to other satellites, spacecraft and astronauts.

This environmentally unsound practice was put a stop to when the Partial Test Ban Treaty was adopted and ratified by both. Today, most nuclear weapons States in the world are parties to the Treaty, with the notable exceptions of the People's Republic of China, North Korea and France. Article I (1) prohibits the testing of

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39 G.H. Reynolds, 'Key Objections to the Moon Treaty' (2003) National Space Society Chapters Network <http://www.nsschapters.org/hub/pdf/MoonTreatyObjections.pdf> accessed 10 Aug. 2014.

40 *Ibid*.

41 H. Hoerlin, *United States High-Altitude Test Experiences: A Review Emphasizing the Impact on the Environment* (Los Alamos Scientific Laboratory of the University of California, 1976), 17.

nuclear weapons in, *inter alia,* outer space. However, paragraph 2 is especially relevant and deserves to be quoted here *in toto:*

> Each of the Parties to this Treaty undertakes furthermore to refrain from causing, encouraging, or in any way participating in, the carrying out of any nuclear weapon test explosion, or any other nuclear explosion, anywhere which would take place in any of the environments described, or have the effect referred to, in paragraph 1 of this Article.[42]

The inclusion of the phrase 'or any other nuclear explosion' is particularly striking here. The phrase 'carrying out' ('*проведении*' in Russian, the other official language of the Treaty, translates best as 'conduct') appears to denote a certain element of purpose, thereby obviously excluding accidents stemming from the use of nuclear-powered spacecraft. While one may debate whether the concept of 'due diligence' might come into play here in some way, in my opinion this is not relevant as it is already covered by a different system of rules involving State responsibility.

The main issue of concern here is that this prohibition only covers nuclear weapons. However, most other WMD remain prohibited as a matter of general international law, notably chemical and biological weapons and it is in any event difficult to imagine a situation where either type could actually be used meaningfully in the environment of outer space. Furthermore, this distinction is only relevant in the context of outer space and not the Moon and other celestial bodies, as the prohibition of militarizing the Moon does not distinguish different types of WMD, nor even weapons in general, for that matter.

A second issue may also be the applicability of the Treaty in times of armed conflict, something which may also be a concern when it comes to the Outer Space Treaty and the Moon Agreement. Let us for a moment turn to the applicability of these treaties in times of war. In my opinion, Allan Rosas addresses the issue adequately:

> The agreements relating to space do not contain any express provision on the matter. Their language seems to suggest that the drafters have had primarily peace-time relations in mind. However, we would suggest as a starting point for analysis that the 1963 Partial Test Ban Treaty, the 1967 Outer Space Treaty and the bilateral USA-USSR agreements remain in force during armed conflict. This is even more true with respect to […] the 1979 Moon Agreement. According to Article 3, paragraph 2, of the last-mentioned Agreement 'any threat or use of force or any other hostile act on the moon is prohibited' […] Though not referring explicitly to the applicability of the Moon Agreement in time of armed conflict, these provisions seem to indicate that such applicability is intended.[43]

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[42] Treaty Banning Nuclear Weapons Tests in the Atmosphere, Outer Space and Under Water (adopted 5 Aug. 1963, entered into force on 10 Oct. 1963) 480 UNTS 43 [hereinafter: Partial Test Ban Treaty], Art. I(2).

[43] Rosas, *supra* n. 6, 361.

It would seem that a similar argument may be made at least with regard to the Partial Test Ban Treaty. Article IV, section 1, states that 'this Treaty shall be of unlimited duration' and section 2 details the manner in which a State Party, having decided that 'extraordinary events […] have jeopardized the supreme interests of its country'[44] may, with three months advance notice to all the other Parties, leave the treaty regime. This wording seems to imply that the Treaty is applicable at all times, including situations of armed conflict. When it comes to the Outer Space Treaty, the wording of Article IV likewise does not leave much room for doubt as to whether or not it is applicable in said situations.

If all of the aforementioned is true, and it very likely is, the United States' National Missile Defence poses a special problem. Any remarks on the wisdom, let alone feasibility of such a system aside, it certainly creates legal issues of exceptional relevance to space law. While the NMD is a complex, multi-layered system,[45] it includes at least one problematic aspect in that an incoming nuclear missile could be intercepted in the area of outer space.

This situation poses a problem in light of the Partial Test Ban Treaty, as causing preventively the detonation of a hostile missile in space would certainly not constitute 'stationing' in the terms of Article IV of the Outer Space Treaty. The problem arises from the wording of Article I (2) of the Test Ban Treaty, which states that 'each of the Parties to this Treaty undertakes furthermore to refrain from *causing* [...] any other nuclear explosion'[46] in space. Bearing in mind that no State in the world would refrain from averting an incoming nuclear warhead solely on the basis of this provision (nor would they consider it illegal to do so) and assuming that the Treaty is indeed applicable in times of armed conflict, there are several ways this issue may be addressed.

First, we need to consider the meaning of the word 'causing'. Although such a situation would actually be provoked by the launching State, the explosion would physically be caused by the defending State; I propose that the provision should be read as having the launching State actually 'cause' the explosion as it is likely and probable that the defending State will intercept the missile. Second, if this is not true, then the acts of the defending State ought to be considered legal either as a lawful countermeasure or as being undertaken in self-defence as a circumstance precluding wrongfulness. Either of these arguments seems plausible and does not necessitate taking the US position that defensive military action is in line with the

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44 Partial Test Ban Treaty, Art. IV(2).

45 See in this regard the website of the Missile Defense Agency of the US Department of Defense at <http://www.mda.mil/>.

46 Partial Test Ban Treaty, Art. I(2).

peaceful uses of outer space. Unfortunately, whether or not this different theoretical approach would make any substantial difference in practice is far less clear.

To conclude, therefore, with regard to the prohibition on placing WMD as such in outer space, the following may be said: the deployment of such weapons in outer space, including the Moon and other celestial bodies is prohibited by Article IV of the Outer Space Treaty as developed, where relevant, by corresponding provisions of the Moon Agreement; their use against Earth or Moon-based targets would therefore be illegal where they are used from space installations. Likewise, the use of nuclear weapons against targets in outer space is prohibited by Article I (2) of the Partial Test Ban Treaty and their use against targets on the Moon would also run contrary to the requirement of using it for exclusively peaceful purposes – this last prohibition covers not only nuclear weapons, but also other types of WMD. Biological and chemical weapons would be illegal as a matter of general international law. Finally, the only use of WMD that is unfortunately not prohibited by space law is the case wherein ICBMs carrying nuclear warheads would pierce the boundaries of outer space after having been fired from one point on the Earth against another one.

4 THE SPACE LIABILITY CONVENTION

There are certainly additional ways of reading existing legislation as placing certain limits upon the ongoing process of militarizing space, although such a reading would probably still fall short of a complete and adequate prohibition. Limits are placed upon States not only by the aforementioned reading of the Outer Space Treaty – they also come from a seemingly less obvious source. I speak of the 1972 Convention on International Liability for Damage Caused by Space Objects, known simply as the Liability Convention, which currently has around ninety States Parties. The Convention builds upon those provisions of the Outer Space Treaty which envision the liability under international law of States for damage caused to others by 'space objects' belonging to them. 'Taking into consideration that […] damage may on occasion be caused by such objects',[47] the Convention states that 'a launching State shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the Earth or to aircraft in flight',[48] but also that, 'in the event of damage being caused [...] to a space object of one launching State or to persons or property on board such a space object by a space object of another launching State, the latter shall be liable only if the damage

[47] Convention on International Liability for Damage Caused by Space Objects (adopted 29 Nov. 1971, entered into force on 1 Sep. 1972) 961 UNTS 187 [hereinafter: Liability Convention], Preamble.

[48] *Ibid.*, Art. II.

is due to its fault or the fault of persons for whom it is responsible'.[49] Furthermore, Article VI, section 1 allows for 'exoneration from absolute liability […] to the extent that a launching State establishes that the damage has resulted either wholly or partially from gross negligence or from an act or omission done with intent to cause damage on the part of a claimant State';[50] section 2 underlines, however, that 'no exoneration whatever shall be granted in cases where the damage has resulted from activities conducted by a launching State which are not in conformity with international law';[51] this includes the UN Charter and the Outer Space Treaty.

The above provisions actually establish a dual regime of liability: the first mode is 'absolute liability', which concerns damage occurring on the surface of the Earth or to aircraft in flight and the sole exception to which is contained in Article VI; the other is 'fault liability', governing damage caused by one State Party's space object to such an object of another, where liability only exists insofar as the launching State is at fault for the damage, thereby excluding simple collisions or accident situations.

A very important provision is certainly Article VII, which notes the sole situations to which the Convention shall not apply, and those are the ones where the damage is caused to nationals of the launching State or foreign nationals 'during such time as they are participating in the operation of [that launching State's] space object'.[52]

Finally, the last provisions of the Convention concern claims between States Parties and the mechanisms in which they may be brought.

A simple, plain-text reading of the Convention clearly establishes absolute liability for any damage caused by 'space objects' of one State Party to another State, or to its citizens or residents, on the surface of the Earth or to aircraft in flight, subject to the exceptions of Article VI. While the requirements for the establishment of liability with regard to damage caused to other space objects are higher, fault liability would doubtlessly cover intentionally-inflicted damage. This leaves us to define the meaning of the term 'space object', to examine whether the Convention is applicable in times of armed conflict and, if so, how this may actually influence military activities in outer space.

Article I clarifies the meaning of certain terms used in the Convention, but when it comes to the phrase 'space object', it merely says that 'the term […] includes component parts of a space object as well as its launch vehicle and parts

[49] *Ibid.*, Art. III.
[50] *Ibid.*, Art. VI(1).
[51] *Ibid.*, Art. VI(2).
[52] *Ibid.*, Art. VII.

thereof'.[53] Obviously, this does not help much when reading Articles II and III, but it is certainly the point where the interpretation of the Convention becomes very interesting.

Bearing in mind the general rule on treaty interpretation mentioned in the previous section, we turn to the wording of the preamble. Regardless of whether or not the official languages of a treaty cause ambiguity in its meaning, the provisions are still to be interpreted in good faith and in line with the object and purpose of the treaty. The preamble of the Liability Convention first proclaims that the States Parties have recognized 'the common interest of all mankind in furthering the exploration and uses of outer space for peaceful purposes'.[54] This, in my opinion, is not to say that the Convention itself concerns merely such peaceful uses, but to the contrary, that the exploration and uses of outer space are meant to be for peaceful purposes *exclusively*. Of course, the meaning of these 'peaceful purposes' is as elusive here as it is in the Outer Space Treaty, but at least their recognition as a guiding principle is much more explicit. This view seems to be reinforced by the States Parties' opinion that, 'Notwithstanding the precautionary measures to be taken by States and international intergovernmental organizations involved in the launching of space objects, damage may on occasion be caused by such objects.'[55] Therefore, if any damage resulting from the use of space objects is envisioned as a mere accident at worst, the logical conclusion is that the aggressive use of such objects is not even to be contemplated. Finally, as Article VI (2) denies any reprieve from absolute liability for acts contrary to international law, including the UN Charter, there seems to be little doubt that the very broad terms of the Liability Convention include weapons as well. In the words of Carl Christol, 'It must be remembered that international space law has been constructed on the basis that lawful uses of space objects are those that are peaceful, i.e., non-aggressive, and beneficial to mankind.'[56]

It might be argued that the Convention was in fact written in order to accommodate for accident situations and this, therefore, would exclude situations of armed conflict – but it seems that at least this argument may be brushed off by a simple *reductio ad absurdum,* as it is incomprehensible that the Convention would envision liability for accidents, no matter how reckless, but not for open and deliberate attack.

Problems may continue to arise. While any type of satellite would doubtlessly qualify as a space object, it is difficult to see how spy satellites could be used in contravention of the treaty as, regardless of whether or not their use per se

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53 *Ibid.*, Art. I.
54 *Ibid.*, Preamble.
55 *Ibid.*
56 C.Q. Christol, 'International Liability for Damage Caused by Space Objects' (1980) 74 AJIL 346, 346.

conforms to international law, damage done to another State, its citizens or residents, on the surface of the Earth, an aircraft in flight, its space object or persons or property on board such an object is a *conditio sine qua non* for incurring liability in terms of the Liability Convention. The treaty defines 'damage' as meaning '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 intergovernmental organizations'.[57] However, even if satellites armed with conventional weapons for defensive use were in conformity with the 'peaceful uses' requirement, if their use were to cause such damage, the launching state would still be liable unless the claimant State itself was somehow at fault – either because of gross negligence or for intentionally provoking the damage by an act or omission, if it is an Article VI exoneration issue, or simply by being also or more at fault than the other State in terms of Article III if the damage is caused by one space object to another (in practice, an armed conflict situation would probably make the determination of such 'fault' relatively easier than it would otherwise be in a collision or accident situation).

The real caveat, of course, is whether aircraft or missiles which can reach altitudes higher than the 100 km border of outer space would qualify as 'space objects' in the meaning of the Convention. Bearing in mind what we have already said in terms of WMD deployed from one point on the Earth's surface against another, my answer to this question would be that they do not. However, in light of modern technological advances and the increasingly blurry difference between spacecraft such as space shuttles and high-altitude aircraft, this is a point that would warrant a separate analysis, which is not currently feasible. However, classifying the space shuttle as a space object, Carl Christol makes the following observation:

> The shuttle can best be characterized on the basis of its function [...] The principal function of the shuttle is to enter orbit, engage in the missions assigned to it while in orbit, and return safely to earth. Thus, though the shuttle transits airspace [...] it does not engage in its principal activities while in airspace. It is conceded that the shuttle has a hybrid quality, but it resembles a space object more than an aircraft because it is intended to go into orbit.[58]

Whatever the merits of Christol's proposed teleological definition of a space object, it is quite certain that, lacking a proper definition in space law, what exactly constitutes a space object will have to remain a matter of some controversy. However, the terms of the Convention being laid out in such a broad manner, it seems safe to assume that any object designed for use in or from outer space would qualify, although it would have to constitute more than simply deploying an

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[57] Liability Convention, Art. I(a).
[58] Christol, *supra n. 57*, 348–349.

air-to-surface missile from an aircraft flying more than 100 km above the Earth's surface, as in the case of National Missile Defence.

When it comes to the question of whether the Liability Convention is applicable in times of armed conflict, we must immediately notice that the sole exception it envisions to absolute liability is the one contained in Article VI, which we have quoted above – this leads us to the conclusion that it is indeed applicable in time of war. Although there has until now been only a single claim under the Convention, which concerned the peacetime crash of the Russian *Cosmos 954* satellite in Canada in 1978, there is nothing in the text implying such limited scope and, lacking a greater amount of case law, there is little reason to dispute this. However, even if we posit the wartime application of the Convention, additional problems arise.

First, the Convention does not directly prohibit the development or use of space objects with a potentially military or hostile use – it merely envisions absolute liability where such objects cause damage to another State, its citizens or residents, on the surface of the Earth or to aircraft in flight and fault liability when damage is caused to another State's space object. Second, the treaty envisions liability merely with respect to other States and not with respect to a State's own nationals, meaning that it would prove useless in situations of an internal armed conflict in which another State's interests are not involved. Third, a State is not liable for damage for which another State itself – the 'claimant' – is to be blamed, which opens wide the door for militarizing space for 'defensive' purposes.

Two hypothetical situations could essentially arise, engaging the different modes of liability envisioned by the Convention. While both would involve causing damage to another State by means of a space object, the first would concern damage done on the surface of the Earth or to aircraft in flight (an Article II issue), whereas the second would involve damage caused to another space object (covered by Article III).

In the first situation, State A uses its armed space object against a ground target of State B. If damage is caused, State A is liable unless the exoneration foreseen by Article VI is met, which is to say, 'the damage has resulted either wholly or partially from gross negligence or from an act or omission done with intent to cause damage on the part of a claimant State',[59] in this case, State B. Therefore, the only issue that could be controversial in such a case is whether or not self-defence would meet this exception. It is possible that Article VI (2) comes into play here, for the nature of self-defence in a single attack could depend on the context of the conflict as a whole. For example, if the use of force by State A against State B is in violation of the UN Charter, it would not be exonerated

[59] Liability Convention, Art. VI(1).

under the Liability Convention for this attack even if in that particular case State B could have been said to have caused the damage by launching an attack. However, if State A was simply acting in self-defence against an illegal attack by State B, Article VI (2) might not be engaged and such a strike could very well be exonerated from absolute liability as the damage would have resulted from State B's intent to cause damage to State A. It must always be borne in mind, however, that Article VI (2) does not only take into consideration the UN Charter, which means that if space law *en général* prohibits militarization, that too would have to be taken into account.

There is one more issue relevant to the aforementioned situation. The term 'damage' as contained in Article VI (1) must also be read in line with the definition provided in Article I (a). Therefore, use of force by means of space objects could only be grounds for exoneration when the claimant State had been acting with the intent to cause damage in the sense of Article I.

A similar situation involving damage caused to another space object would be governed by Article III and 'fault liability'. However, for the purposes of militarization, there does not seem to be an essential difference between the regimes of Articles II and III. What is relevant here is the nature of the 'fault' envisioned by Article III, but it is likely that it is almost identical to what is envisioned by Article VI (1). Here we should, however, mention the issue of spy satellites and other such craft that do not have a role that is as directly threatening as missiles or the like; in my opinion, regardless of how international humanitarian law might treat such objects, it is difficult to see how the very use of such objects would be sufficient in order to exonerate an attack against them under Article III.

Of course, there are still lacunae in this reading of the Convention. We have already mentioned that it would not cover a majority of non-international armed conflicts; neither would it entail any sort of liability for damage caused to the space object of a State if said damage had not been caused by another space object. This could lead to the absurd situation that a State could be held liable for shooting down a satellite by means of another space object, but not for doing so using Earth-based weapons. Regardless, the wording of the treaty seems sufficiently clear in my opinion to establish that it is not applicable merely in peacetime; the above analysis merely seems a logical conclusion from the given premises.

I would summarize this section as follows: if we agree that the Liability Convention is applicable in times of armed conflict, it would seem to establish a regime of liability that is relevant to the militarization of space regardless of whether or not space weapons are actually legal as such, for even if they are, the Liability Convention could apparently function as a subsidiary means of concluding that, in a vast majority of cases, their use would still entail the liability

of the launching state. This would make the provisions of the Liability Convention a very important means for opposing the militarization of outer space.

5 CONCLUSION

Although international space law is no longer adequate for meeting the challenges posed by the technological and political developments of the twenty-first century, it remains a cornerstone of the regime of international regulation of the activities of States in outer space and on celestial objects. This is true not merely when it comes to the issue of militarization, but also the applicability of the 'common heritage of mankind' concept – even if this phrase has been somewhat ominously replaced with 'province of all mankind'. Certain provisions of the Outer Space Treaty pave the way for including developing countries in the exploration and use of outer space and should ideally lead to universal and equitable exploitation of resources present in the 'final frontier'.

The treaties of space law – mainly the Outer Space Treaty, the Moon Agreement and the Liability Convention – *may* be read as providing a sufficiently rigid definition of the 'peaceful uses' they claim to mandate so as to prohibit a turn of events that would certainly not be for the better; then again, they may not be read thus and therefrom stems their most serious shortcoming. Arguments as to how to interpret international law need not always carry too much weight in the deliberations of those who are responsible for making the actual decisions.

There is still hope that a new treaty will be negotiated in the United Nations that will improve the existing legislation. While we should expect the treaty to primarily concern itself with issues not contemplated by the current body of treaty law, I doubt that basic issues such as militarization will be off the table when the time finally does come. Let us hope that the results will improve the efforts for peaceful coexistence rather than hinder them.