Peaceful Purposes? Governing the Military Uses of Outer Space*

*Steven Freeland***

Abstract

The development of satellite technology to enhance the exploration and use of outer space has continued at a rapid rate ever since the space age began in 1957. Satellites play a vital part of many aspects of daily life, and also with respect to the conduct of armed conflict. Most military leaders regard space-related technology as an integral element of their strategic battle platform. This reflects the changing technological nature of armed conflict, which challenges many aspects of international law, including the regulation of warfare. This is particularly the case with respect to the use of satellite technology. Moreover, the continuing development of this technology challenges the core of the 'peaceful purposes' doctrine that underpins the international regulation of outer space. This article discusses the application of the United Nations Space Treaties and the laws of war to the use of outer space during armed conflict and offers some reflections as to what is required to properly address the issue.

Keywords: space law, armed conflict, peaceful purposes, space warfare.

A Outer Space – A 'Non-Military' Area?

On 4 October 1957, the world's first artificial satellite was launched – a Soviet space object called Sputnik I. It subsequently orbited the earth over 1,400 times during the following three-month period. This was, of course, a highly significant moment, heralding the dawn of the space age, the space race and the legal regulation of the exploration and use of outer space.

Since that time, international law has been developed to facilitate significant improvements in the standard of living for all humanity, through satellite telecommunications, global positioning systems, remote sensing technology for weather forecasting and disaster management, and television broadcast from satellites. Ever newer technologies will continue to expand the horizons of what

* This article was completed in March 2015 and builds upon research published in 2015 in the *Handbook of Space Security*.

** Professor of International Law, Western Sydney University; Visiting Professor, University of Vienna: Permanent Visiting Professor, iCourts Centre of Excellence for International Courts, Denmark; Member of Faculty, London Institute of Space Policy and Law; Director, International Institute of Space Law; Member of the Space Law Committee, International Law Association; Member, European Centre of Space Law.

doi: 10.5553/EJLR/138723702016018001003

space might be able to offer. In this regard, space law has played a positive role, by allowing for – and not unduly restricting – the development of space-related technology.

That said, this still represents a reflection of the relatively early stages of our adventures in outer space. We have moved on from the first quite tentative steps, but there is more that is yet to be attempted. The prospects for the future offer both tremendous opportunities and challenges for humankind, and law will undoubtedly continue to play a crucial role in this regard.[1]

At the same time, the existing legal regime has not prevented the development of military technology capable of utilizing outer space. Whilst there are some restrictions, these were specified in relatively general terms and were open to divergent interpretation as to what they did (and did not) prohibit. This is not entirely surprising, since the development of space-related technology was, at least initially, inextricably related to military strength – both in reality and to influence the perception of others. It is no coincidence that the space race emerged at the height of the Cold War, when both the United States and the USSR strove to flex their respective technological 'muscles'. The early stages of human space activity coincided with a period of quite considerable tension, with the possibility of large scale and potentially highly destructive military conflict between the (space) superpowers of the time always lurking in the background.

Despite the possibilities for humankind that it would present, the successful launch of Sputnik generated unease in the west, since the technology used was similar to that for ballistic missiles.[2] Within this highly sensitive context, it was crucial that efforts were made by the international community to regulate this new frontier to avoid both a build-up of weapons and armed conflict in space (in more modern parlance, referred to as the 'Prevention of an Arms Race in Outer Space' [PAROS]).[3]

The conventional obligations and restrictions that were eventually agreed and codified in the major space treaties addressed, in part, specific military and weapons-related aspects of space activities. However, they were, as described below, neither entirely clear nor sufficiently comprehensive to meet all of these

1 One of these developments is the increasing use of so-called small satellites, which also offer both considerable opportunities and regulatory challenges. *See* S. Freeland, 'NewSpace, Small Satellites and Law: Finding a Balance between Innovation, a Changing Space Paradigm and Regulatory Control' (forthcoming).

2 *See* 'NATO Update – 1957' <www.nato.int/docu/update/50-59/1957e.htm>, accessed 26 February 2015.

3 Refer to the numerous United Nations General Assembly (UNGA) Resolutions, beginning with Resolution 36/97C, (9 December 1981), which have been directed towards the 'Prevention of an Arms Race in Outer Space'. Most recently, the UNGA adopted draft Resolution 69/438 (2 December 2014) (178 in favour, none against, and 2 abstentions [Israel and the United Sates]), which called on all states, in particular those with major space capabilities, to contribute actively to the peaceful use of outer space, prevent an arms race in space, and refrain from actions contrary to that objective: *see* United Nations Press Release, 'General Assembly Adopts 63 Drafts on First Committee's Recommendation with Nuclear Disarmament at Core of Several Recorded Votes', 2 December 2014, GA/11593 <www.un.org/press/en/2014/ga11593.doc.htm>, accessed 1 March 2015.

European Journal of Law Reform 2016 (18) 1
doi: 10.5553/EJLR/138723702016018001003

challenges. Space was declared as to be used 'exclusively for peaceful purposes'.[4] Whilst most space scholars would subsequently interpret the relevant provisions as prohibiting military space activities in outer space, this was not followed by the practice of those who actually had space capability. Indeed, with the benefit of hindsight, it is now clear that space has been utilized for military activities almost from the commencement of the space age.

Since those early days, the situation has, if anything, become significantly more complex, with potentially drastic and catastrophic consequences. Just as the major space-faring nations have been undertaking what might be termed 'passive' military activities in outer space, outer space is increasingly now being used as part of active engagement in the conduct of armed conflict.[5] Not only is 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 also space assets are now used to direct military activity and represent an integral part of the military hardware of the major powers. It is now within the realms of reality that outer space may itself become an emerging theatre of warfare.

With these developments in mind, this article looks at the existing international legal regime and focuses on the (possible) application of the current laws of war to the use of outer space. Whilst it is clear that outer space has been and is being used for military purposes, what is not straightforward is precisely how various aspects of these activities are regulated at the international level. Instead, what emerges is that, to the extent that the existing *jus in bello* principles are applicable to space-related activities, there are undoubtedly some circumstances in which their scope of application might not be sufficient, particularly given the unique environment of outer space.

In the end, although the laws of war do (in theory) appear to apply to activities in outer space, the principles may not be specific enough to provide appropriate regulation for the increasingly diverse ways in which outer space could be used during the course of armed conflict. There is therefore a need to reach a consensus on additional legal regulation directly applicable to the conduct of armed conflict that may involve the use of space technology. There are efforts being made in this regard, although agreement on a binding set of rules is, at least in the short-medium term, unlikely. If a legal regime capable of providing more certainty and comfort is to be established, political will, close co-operation and greater trust between the major space powers, supported by other states and the international community, will be required, so as to lessen the chances of a confla-

4 1967 Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and other Celestial Bodies 610 U.N.T.S. 205 (Outer Space Treaty), Article IV.

5 *See*, for example, J. Maogoto & S. Freeland, 'The Final Frontier: The Laws of Armed Conflict and Space Warfare', *Connecticut Journal of International Law*, Vol. 23, No. 1, 2007, p. 165; 'A New Arms Race in Space?' *The Economist*, 25 January 2007, p. 5; T. Ricks, 'Space Is Playing Field for Newest War Game; Air Force Exercise Shows Shift in Focus', *The Washington Post*, 29 January 2001, p. A1.

gration involving space assets, with all of the negative and unknown consequences that that would entail.

B International Legal Regulation of Outer Space

I Fundamental Principles of Space Law

The journey of Sputnik immediately gave rise to difficult and controversial legal questions, involving previously undetermined concepts. Although prior scholarship had considered the nature and scope of laws that might apply to the exploration and use of outer space, this was only on a hypothetical basis.[6] All of a sudden, the reality of humankind's aspirations and capabilities with respect to outer space became apparent. The world had to react to an unprecedented event in a largely unregulated legal environment.

Moreover, these embryonic space activities and the rapid development of space technology that followed were, as noted above, largely driven at the time by the prevailing geopolitical situation. The desire for ever-increasing technological prowess was as much motivated by military considerations as a wish to explore and use space for other (scientific) purposes. It was in this context that the international community had to react, as it walked a fine balancing line between the wishes of the then two existing superpowers on the one hand and a general sense of uncertainty as to where exactly these military-driven achievements involving space might ultimately lead on the other.

It was therefore no surprise that, shortly after the Sputnik launch, the United Nations established a new committee to take primary responsibility for the development and codification of the fundamental rules relating to outer space, with the symbolically important name of United Nations Committee on the *Peaceful* Uses of Outer Space (UNCOPUOS). An *ad hoc* Committee on the Peaceful Uses of Outer Space, with 18 initial member states, was established in 1958,[7] and it subsequently became a permanent body in 1959.[8] UNCOPUOS is now regarded by many as the principal multilateral body involved in the development of international space law.

As to legal principles, first and foremost, the journey of Sputnik necessitated a clarification as to the legal categorization of outer space for the purposes of international law. As a preliminary matter, one would have anticipated agreement as to a legal definition of what constitutes outer space. Indeed, this was the first

6 For a summary of the main academic theories relating to 'space law' in the period prior to the launch of Sputnik, *see*, for example, F. Lyall & P.B. Larsen, *Space Law: A Treatise*, Ashgate 2009, pp. 3-9.

7 *See* UNGA Resolution 1348 (XIII) on Questions on the Peaceful Uses of Outer Space (13 December 1958), passed barely two months after the launch of Sputnik, where the UNGA recognized "the common interest of mankind in outer space" and that it is "the common aim that outer space should be used for *peaceful purposes only*" (emphasis added).

8 *See* UNGA Resolution 1472 (XIV) on International Cooperation in the Peaceful Uses of Outer Space (12 December 1959). As at the end of 2014, UNCOPUOS has 77 Members, which, according to its website, makes it 'one of the largest Committees in the United Nations' <www.unoosa.org/oosa/en/COPUOS/members.html>, accessed 27 February 2015.

European Journal of Law Reform 2016 (18) 1
doi: 10.5553/EJLR/138723702016018001003

issue put to UNCOPUOS. Whilst many theories have been proposed since then, quite remarkably (at least for those not involved in the diplomatic discussions), the question of where air space 'ends' and outer space 'begins' has thus far remained unanswered from an international legal viewpoint. As a result, the question of the 'definition and delimitation of outer space' remains on the agenda of UNCOPUOS meetings.[9]

There was also the question of the 'status' of outer space. Although the USSR had not sought the permission of other states to undertake the Sputnik mission, there were no significant protests that it had infringed on any country's sovereignty as it circled the earth. This international (in)action confirmed that this new frontier of human activity did not possess the elements of sovereignty that had already been well established under the international law principles regulating land, sea and air space. As was observed by Judge Manfred Lachs of the International Court of Justice:[10]

> [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.

However, notwithstanding the lack of a clear definition of outer space, a number of fundamental legal principles relating to the exploration and use of outer space emerged quickly, although their codification into a treaty form took more time. This was due to a number of reasons, including the unique environment with which any legally binding instrument would have to deal, the significant political and strategic factors at play, and the rapid growth of space-related technology that followed almost immediately from the Sputnik success.

Thus, several foundational principles of the international law of outer space were born – in particular the so-called 'common interest', 'freedom' and 'non-appropriation' principles. These were later incorporated into the terms of the United Nations Space Law Treaties,[11] with the result that they also constitute binding conventional rules, codifying what had already amounted to principles of customary international law. In essence, the community of states, including both of the major space-faring states of the time, had accepted that outer space was to be regarded as being similar to a *res communis omnium*.[12]

As noted, these fundamental rules underpinning the international law of outer space represent a significant departure from the legal rules relating to air space, which is categorized as constituting part of the 'territory' of the underlying

9 *See* 'Annotated provisional agenda' (13 January 2015) of the UNCOPUOS Legal Subcommittee meeting to be held in April 2015, item 6(a), UN Doc. A/AC.105/C.2/L.295.

10 *North Sea Continental Shelf Cases (Federal Republic of Germany v. Denmark and Federal Republic of Germany v. The Netherlands)* (Judgment), Dissenting Opinion of Judge Lachs [1969] ICJ Rep 3, 230.

11 *See*, for example, Outer Space Treaty, Articles I and II.

12 A. Cassese, *International Law*, 2nd edn, Oxford University Press 2005, p. 95.

state. The territorial nature of air space is reflected in the principal air law treaties.[13] The International Court of Justice has also confirmed that this characteristic of air space also represents customary international law.[14]

As a consequence, civil and commercial aircraft have only certain limited rights to enter the air space of another state,[15] in contrast to the freedom principle relating to outer space.[16] Even though, as noted above, delimitation between air space and outer space has not yet definitively emerged, this has not in practice led to any significant confusion as to 'which law' might apply in particular circumstances.[17]

By contrast to the position regarding airspace, article II of the Outer Space Treaty encompasses the 'non-appropriation' principle.[18] The provision reads:

> Outer space, including the moon and other celestial bodies, is not subject to national appropriation by claim of sovereignty, by means of use or occupation, or by any other means.

In general terms, article II confirms that outer space (which includes the moon and other celestial bodies) is not subject to ownership rights and prohibits *inter alia* any sovereign or territorial claims to outer space. Outer space therefore is not to be regarded as 'territorial', a principle that was already well accepted in practice. Indeed, by the time that the Outer Space Treaty was finalized, both the United States and the USSR had been engaged in an extensive range of space activities; yet neither had made a claim to sovereignty over any part of outer space, including celestial bodies, notwithstanding the planting by the Apollo 11

13 For example, reaffirming the principle already acknowledged as early as in 1919 (Convention on the Regulation of Aerial Navigation 11 L.N.T.S. 173 (Paris Convention), Article 1 of the 1944 Convention on International Civil Aviation 15 U.N.T.S. 295 (Chicago Convention) provides that 'every state has complete and exclusive sovereignty over the air space above its territory.'

14 In *Case Concerning Military and Paramilitary Activities in and against Nicaragua (Nicaragua v. United States)* (Merits) (Judgment), the court noted that '[t]he principle of respect for territorial sovereignty is also directly infringed by the unauthorized overflight of a State's territory by aircraft belonging to or under the control of the government of another State': [1986] ICJ Rep 14, 128.

15 *See* Chicago Convention, Articles 5 and 6.

16 Of course, any space activities requiring a launch from earth and/or a return to earth will also involve a 'use' of air space. In this respect, the law of air space may be relevant to the legal position if, for example, the space object of one state travels through the air space of another state. *See also* Article II of the 1972 Convention on International Liability for Damage Caused by Space Objects 961 U.N.T.S. 187 (Liability Convention), which applies *inter alia* to 'aircraft in flight' (*i.e.* in air space).

17 However, as the range of activities in outer space becomes ever broader, the issue will become more important in relation not only to the broad principles of international space law but also on a practical level – for example, to the regulation of commercial sub-orbital space tourism activities: *see* S. Freeland, 'Fly Me to the Moon: How Will International Law Cope with Commercial Space Tourism?', *Melbourne Journal of International Law*, Vol. 11, No. 1, 2010, p. 90.

18 For a detailed analysis of Article II of the Outer Space Treaty, *see* S. Freeland & R. Jakhu, 'Article II', *in* S. Hobe, B. Schmidt-Tedd & K.-U. Schrogl (Eds.), *Cologne Commentary on Space Law, Volume I – Outer Space Treaty*, Carl Heymanns Verlag 2009, p. 44.

European Journal of Law Reform 2016 (18) 1
doi: 10.5553/EJLR/138723702016018001003

astronauts of an American flag on the surface of the moon.[19] As a result, although it was of great importance to formalize this principle of non-appropriation of outer space, the drafting process leading to the finalization of Article II of the Outer Space Treaty was relatively uncontroversial, particularly given its early acceptance as a fundamental concept by the two space faring states.

It is no coincidence, however, that the non-appropriation principle is set out immediately following Article I, which elaborates on the 'common interest' and 'freedom' principles and confirms that the exploration and use of outer space is to be undertaken 'for the benefit and in the interests of all countries' and freely 'by all states without discrimination of any kind, on a basis of equality and in accordance with international law'. In general terms, the primary intent of Article II was to reinforce these important concepts by confirming that principles of territorial sovereignty do not apply to outer space. Not only does this reflect the practice of states from virtually the beginning of the space age,[20] but it was an important proactive step designed to protect outer space from the possibility of conflict driven by territorial or colonizing ambitions.

In this regard, the United States delegate to UNCOPUOS, Mr. Herbert Reis, reiterated the specific object and purpose of Article II on 31 July 1969, just a matter of days after the Apollo 11 astronauts had landed on the moon, as follows:[21]

> The negotiating history of the Treaty shows that the purpose of this provision (i.e. article II) was to prohibit a repetition of the race for the acquisition of national sovereignty over overseas territories that developed in the sixteenth, seventeenth, eighteenth and nineteenth centuries. The Treaty makes clear that no user of space may lay claim to, or seek to establish, national sovereignty over outer space.

The sentiments reflected in Article II are therefore fundamental to the regulation of outer space and its exploration and use for peaceful purposes. A binding principle of non-appropriation is an essential element of international space law, to be preserved and followed in the conduct of all activities in outer space.

Apart from the express fundamental principles specified in the United Nations Space Treaties, the degree to which international law governs outer space

19 This is to be compared with the situation in Antarctica, which had seen a series of sovereign claims by several states in the period leading up to the finalization in 1959 of the Antarctic Treaty, 402 U.N.T.S. 71. Article IV of the Antarctic Treaty has the effect of suspending all claims to territorial sovereignty in Antarctica for the duration of that instrument, as well as prohibiting any 'new claim, or enlargement of an existing claim'. The Protocol on Environmental Protection to the Antarctic Treaty, 30 I.L.M. 1455, which came into force in 1998, augments the Antarctic Treaty by protecting Antarctica from commercial mining for a period of 50 years.

20 One notable exception in this regard was the Bogota Declaration. In 1976, a number of equatorial states – including Brazil, Colombia, the Congo, Ecuador, Indonesia, Kenya, Uganda and Zaire – claimed sovereign rights over segments of the geostationary synchronous orbit above their respective territories, principally based upon the lack of an accepted delimitation between air space and outer space.

21 Cited from E.N. Valters, 'Perspectives in the Emerging Law of Satellite Communications', *Stanford Journal of International Studies*, Vol. 5, No. 53, 1970, p. 66.

is perhaps less straightforward. The Outer Space Treaty affirms that activities in space are to be carried on 'in accordance with international law',[22] but the fact that most existing international law at the time was developed for 'terrestrial' purposes meant that it was not readily or directly applicable in every respect to this new paradigm of human endeavour. Moreover, the non-sovereignty aspect of outer space meant that any then existent national law (which, in any event, did not specifically address space-related issues) would not *prima facie* apply to this frontier and would not be the appropriate legal basis upon which to establish the initial framework for regulating the conduct of humankind's activities in outer space. It was clear, therefore, that, at the dawn of the development of 'space law', specific international binding rules would be required to address the particular characteristics and legal categorization of outer space.

As noted, the law of outer space has developed as a body of law embedded within general public international law. There is now a substantial body of law dealing with many aspects of the use and exploration of outer space, mainly codified in and evidenced by Treaties, UNGA resolutions, national legislation, decisions of national courts, bilateral arrangements, and determinations by Intergovernmental Organizations.

Five important multilateral treaties have been finalized through the auspices of UNCOPUOS. These are:

1 The Outer Space Treaty;
2 1968 Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space;[23]
3 The Liability Convention;
4 1975 Convention on Registration of Objects Launched into Outer Space;[24]
5 1979 Agreement Governing the Activities of States on the Moon and other Celestial Bodies.[25]

Among other important principles, the United Nations Space Treaties confirm that the exploration and use of outer space is, as noted, to be for 'peaceful purposes'.[26] Almost as soon as it was agreed and codified, however, this principle became controversial and the subject of conjecture and differing interpretations – arguments still persist as to whether this refers to 'non-military' or 'non-aggressive' activities (see further below).

The UNGA has also adopted a number of space-related principles, which include the following:

1 1963 Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space;[27]

22 Outer Space Treaty, Article III.
23 672 U.N.T.S. 119.
24 1023 U.N.T.S. 15.
25 1363 U.N.T.S. 3 (Moon Agreement).
26 Outer Space Treaty, article IV.
27 UNGA Resolution 1962 (XVIII) on the Declaration of Legal Principles Governing the Activities of States in the Exploration and Uses of Outer Space (13 December 1963).

European Journal of Law Reform 2016 (18) 1
doi: 10.5553/EJLR/138723702016018001003

2 1982 Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting;[28]
3 1986 Principles Relating to Remote Sensing of the Earth from Outer Space;[29]
4 1992 Principles Relevant to the Use of Nuclear Power Sources in Outer Space;[30]
5 1996 Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries.[31]

These provide for the application of international law and the promotion of international co-operation and understanding in space activities, the dissemination and exchange of information through transnational direct television broadcasting via satellites and remote satellite observations of earth and general standards regulating the safe use of nuclear power sources necessary for the exploration and use of outer space. More recent 'guidelines' have also been agreed relating to various other important issues, including the problem of space debris.[32]

It is generally agreed that Resolutions of the UNGA are non-binding, at least within the traditional analysis of the 'sources' of international law specified in Article 38(1) of the Statute of the International Court of Justice.[33] In the context of the regulation of the exploration and use of outer space, these five sets of principles have therefore largely been considered as constituting 'soft law',[34] although a number of specific provisions may now represent customary international law.

Yet, despite all of these developments, it is clear that the existing legal and regulatory regime has not kept pace with the remarkable technological and commercial progress of space activities since 1957. This represents a major challenge in relation to the ongoing development of effective legal principles, all the more in view of the strategic and military potential of outer space in an era of globalization.

28 UNGA Resolution No. 37/92 on the Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting (10 December 1982).
29 UNGA Resolution No. 41/65 on the Principles relating to Remote Sensing of the Earth from Outer Space (3 December 1986).
30 UNGA Resolution No. 47/68 on the Principles relevant to the Use of Nuclear Power Sources in Outer Space (14 December 1992).
31 UNGA Resolution No. 51/122 on the Declaration on International Cooperation in the Exploration and Use of Outer Space for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of Developing Countries (13 December 1996).
32 *See* IADC Space Debris Mitigation Guidelines prepared by the Inter-Agency Space Debris Coordination Committee in 2007 <www.iadc-online.org/index.cgi?item=docs_pub>: and UNGA Resolution 62/217 (22 December 2007), which (in para. 26) endorsed the Space Debris Mitigation Guidelines agreed by UNCOPUOS (UN Guidelines). *See also* U. Bohlmann & S. Freeland, 'The Regulation of Space Activities and the Space Environment', *in* S. Alam *et al*. (Eds.), *Routledge Handbook of International Environmental Law*, Routledge 2013, p. 375.
33 1 U.N.T.S. 16 (ICJ Statute). It is generally asserted by international law scholars that article 38(1) of the ICJ Statute lists the so-called 'sources' of international law: *see*, for example, G. Schwarzenberger, *International Law*, 3rd edn, Vol. 1, Stevens 1957, pp. 21-22; A. Cassese, *International Law*, 2nd edn, 2005, p. 156.
34 *See* S. Freeland, 'The Role of "Soft Law" in Public International Law and its Relevance to the International Legal Regulation of Outer Space', *in* I. Marboe (Ed.), *Soft Law in Outer Space: The Function of Non-binding Norms in International Space Law*, Bohlau Verlag 2012, p. 9.

II Principles Relevant to 'Military' Uses of Outer Space

As noted, the Outer Space Treaty provides a number of general principles that are intended to restrict the military uses of outer space. One of these is the requirement 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'.[35] A primary reason for the inclusion of this provision was the concern among many states that outer space would become a new arena for international conflict. In December 1958, the United Nations emphasized the need 'to avoid the extension of present national rivalries into this new field'.[36] In the same vein, Bin Cheng aptly asserted that 'outer space brought with it a whole new ball game.'[37]

By 1961, the General Assembly had recommended that international law and the United Nations Charter should apply to 'outer space and celestial bodies'.[38] This was repeated in UNGA Resolution 1962, which set out a number of important principles that were ultimately incorporated into the Outer Space Treaty.[39] The specific reference to the United Nations Charter was considered to be important, given that the maintenance of international peace and security is the underlying principle of the system established under that instrument.[40] The prohibition on the use of force contained in Article 2(4) of the United Nations Charter represents a crucial element in the regulation of international relations and is equally applicable to the use of outer space.[41]

The sentiments underlying the United Nations Charter were strengthened further by the restrictions imposed in relation to nuclear weapons and weapons of mass destruction by Article IV of the Outer Space Treaty, although, as has been well documented, this provision in and of itself does not represent a complete restriction on the placement of weapons in outer space, nor of their use.[42] Indeed,

35 Outer Space Treaty, Article III. Article 2 of the Moon Agreement extends these sentiments further by referring to 'the Declaration on Principles of International Law concerning Friendly Relations and Co-operation among States in accordance with the Charter of the United Nations, adopted by the General Assembly on 25 October 1970'.

36 UNGA Resolution 1348 (XIII), *supra* note 7, preamble para. 3.

37 B. Cheng, 'The 1967 Outer Space Treaty: Thirtieth Anniversary', *Air and Space Law*, Vol. 23, No. 4/5, 1998, pp. 157-158.

38 UNGA Resolution 1721 (XVI) on International Co-operation in the Peaceful Uses of Outer Space (20 December 1961), para. 1(a).

39 UNGA Resolution 1962 (XVIII), *supra* note 27, para. 4.

40 1 U.N.T.S. xvi (892 U.N.T.S. 119). The first 'Purpose' of the United Nations specified in Article 1(1) of the United Nations Charter begins with the words: 'To maintain international peace and security …'

41 Article 2(4) of the United Nations Charter 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.'

42 For a detailed analysis of Article IV of the Outer Space Treaty, *see* K.-U. Schrogl & J. Neumann, 'Article IV', *in* S. Hobe, B. Schmidt-Tedd & K.-U. Schrogl (Eds.), *Cologne Commentary on Space Law, Volume I – Outer Space Treaty*, 2009.

European Journal of Law Reform 2016 (18) 1
doi: 10.5553/EJLR/138723702016018001003

from time to time, proposals have been put forward to amend Article IV in order to enhance these restrictions, but these have not been successful.[43]

As noted, Article IV also provides that "[t]he moon and other celestial bodies shall be used by all States Parties to the [Outer Space] Treaty *exclusively for peaceful purposes*."[44] 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, unfortunately, been different. It is undeniable that, in addition to the many commercial, civilian 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 – 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 view, it seems that the 'non-military/non-aggressive' debate relating to the peaceful purposes requirement is a redundant argument, even though it represents an extremely important issue of interpretation of the strict principles of international space law. In one sense, this accepts that the militarization of space is a given, even though many international and space lawyers are at pains to admit this.

Another complicating factor is that Article 31(3)(b) of the 1969 Vienna Convention on the Law of Treaties[45] provides that any 'subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation' *shall* be taken into account to ascertain the meaning of a particular provision of a treaty. Although the argument has not been discussed in detail in the literature, the possibility exists to construct an argument that the subsequent practice of the states parties to the Outer Space Treaty is relevant to determine the meaning of 'peaceful purposes'.[46] Of course, this is an argument that, once again, would be repugnant to many traditional space lawyers and may in any

43 *See*, for example, V. Bogomolov, 'Prevention of an Arms Race in Outer Space: The Deliberations in the Conference on Disarmament in 1993', *Journal of Space Law*, Vol. 21, No. 2, 1993, p. 141, where the author refers to a failed Venezuelan proposal to amend Article IV.

44 Emphasis added. *See also* Moon Agreement, Article 3(1).

45 1155 U.N.T.S. 331 (VCLT).

46 The VCLT entered into force on 27 January 1980 and does not apply retrospectively. As a consequence, it is generally regarded that the terms of the VCLT can, strictly speaking, only be applied to treaties that themselves have been concluded after that date. However, the International Court of Justice has on several occasions confirmed that both Articles 31 and 32 of the VCLT, which set out the principles to be applied in the interpretation of a treaty, reflect customary international law and has applied these rules to treaties that pre-date the VCLT: *see*, for example, *Case concerning the Territorial Dispute (Libyan Arab Jamahiriya v. Chad)* (Judgment) [1994] ICJ Rep 6, para. 41; *Case concerning Maritime Delimitation and Territorial Questions (Qatar v. Bahrain)* (Judgement) [1995] ICJ Rep 6, para. 33; *Legal Consequences of the Construction of a Wall in the Occupied Palestinian Territory* (Advisory Opinion) [2004] ICJ Rep 136, para. 94; *Namibia South West Africa (Legal Consequences for States of the Continued Presence of South Africa)* (Advisory Opinion) [1971] ICJ Rep 3, para. 94; *Fisheries Jurisdiction (United Kingdom v. Iceland)* (Jurisdiction) [1973] ICJ Rep 3, paras. 24 and 36. As a consequence, these rules of interpretation might also be applicable to United Nations Space Treaties, including the Outer Space Treaty.

event fail before a court, but it does serve to indicate that the widespread military use of outer space may be relevant to determine the current legal position.

Moreover, Article 51 of the United Nations Charter – which confirms the 'inherent right' of self-defence 'if an armed attack occurs' – is also applicable to the legal regulation of outer space. Under the principles of public international law, this right remains subject to express legal limitations – the requirements of necessity and proportionality.[47] Even where the right of self-defence is lawfully exercised, the state so acting will remain subject to the laws of war. Whilst this is, in theory, uncontroversial, the difficulty is to determine precisely whether (and how) these fundamental principles can be applied to the unique legal and technological context of outer space.

This is particularly relevant given that the use of satellite technology already represents an integral part of the military strategy and the conduct of many armed conflicts. As this technology continues to develop, the armed conflicts of the 21st century and beyond will increasingly involve the utilization of outer space. In this regard, the United Nations is, as noted, anxious to avoid the 'weaponization' of outer space. However, the current political momentum does, unfortunately, appear to be directed towards a greater incorporation of satellite technology in outer space as part of the course of warfare.

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 – rather it is important both to understand what (and how) existing legal principles, including the rules of the laws of war, apply to any military activities involving outer space and to determine what needs to be done to provide, at least from a regulatory perspective, an appropriate framework to protect humankind in the future.

C The Relevance of the Laws of War to Outer Space

As noted, the existing principles of international humanitarian law are, as an integral part of international law, applicable in theory to the military use of outer space. There is no specific 'territorial' limitation to the laws and customs of war, which apply both to the area where the hostilities actually take place, as well as to other areas affected by those hostilities. If, for example, direct military action takes place in one area, but the effects of that action impact on civilians elsewhere, that represents a relevant consideration in determining whether such action is consistent with, for example, the principle of proportionality.[48] As a consequence, any military activity that takes place in outer space will *prima facie* be subject to the *jus in bello* in relation not only to that direct action but also as to its effects elsewhere, including on earth.

47 *See The Caroline Case* 29 B.F.S.P. 1137-1138; 30 B.F.S.P. 195-196, which also referred to a requirement of immediacy, although this was not mentioned in the decision of the International Court of Justice in *Oil Platforms (Merits) (Iran v. United States)* [2003] ICJ Rep. 161.

48 For a discussion of the relevant principles of the *jus in bello, see* A. Roberts & R. Guelff (Eds.), *Documents on the Laws of War*, 3rd edn, Oxford University Press 2005; S. Freeland, 'The Laws of War in Outer Space', *in* K.-U. Schrogl *et al*. (Eds.), *Handbook of Space Security*, 2015, p. 81.

European Journal of Law Reform 2016 (18) 1
doi: 10.5553/EJLR/138723702016018001003

Having reached this conclusion, it is then necessary to determine whether this is just an issue of academic curiosity or, alternately, whether the rules of war are 'relevant' to activities in outer space. The answer, unfortunately, appears self-evident.

It was during the Gulf War in 1990 that the military value of space assets for the conduct of warfare was first utilized to a significant degree. 'Operation Desert Storm' is regarded as 'the first space war'.[49] It was recognized that the use of space technology would create an 'integrated battle platform' to aid in the implementation of military strategy.

Following the attacks of 11 September 2001, the United States Administration embarked on a policy designed to dominate the space dimension of military operations. This necessitates having the ability to protect critical infrastructure and assets in outer space. Although the Obama administration has more recently issued an updated space policy that emphasizes co-operation to a far greater degree,[50] these sentiments still represent the approach of the United States military.

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.[51] In 2001, prior to the attacks on September 11, a commission headed by former United States 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'.[52] 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.

The European Union has also identified outer space as 'a key component for its European Defense and Security Policy'[53] and China and Russia also regard space as a vital part of their military infrastructure.

In this complex geopolitical context, several commentators have opined that space warfare is, in fact, inevitable and cannot be avoided.[54] If these assertions turn out to reflect reality, the principles of the laws of war might be applied. However, it is not clear how this will be done in practice and what consequences will follow.

49 J. Maogoto & S. Freeland, 'Space Weaponization and the United Nations Charter: A Thick Legal Fog or a Receding Mist?', *The International Lawyer*, Vol. 41, No. 4, 2007, pp. 1091, 1107.

50 *See* President of the United States of America, 'National Space Policy of the United States of America', 2010 <www.whitehouse.gov/sites/default/files/national_space_policy_6-28-10.pdf>, accessed 28 March 2014.

51 R. Hagen & J. Scheffran, 'International Space Law and Space Security – Expectations and Criteria for a Sustainable and Peaceful Use of Outer Space', *in* M. Benkö & K.-U. Schrogl, *Space Law: Current Problems and Perspectives for Future Regulation*, Eleven International Publishing, The Hague 2005, p. 273.

52 *See* J.-M. Stoullig, 'Rumsfeld Commission Warns Against "Space Pearl Harbor"', *SpaceDaily*, 11 January 2001, <www.spacedaily.com/news/bmdo-01b.html>, accessed 27 February 2015.

53 Hagen & Scheffran 2005, pp. 281-282.

54 *See*, for example, I.M. De Angelis, 'Legal and Political Implications of Offensives Actions from and against the Space Segment', *Proceedings of the Colloquium on the Law of Outer Space*, 2002, Vol. 45, p. 197.

One complicating factor in this analysis is the increasing prevalence of what are referred to as 'dual-use' satellites. The concept of a dual-use facility or resource – typically a commercial facility or resource that is also utilized by the military – has become a common feature of contemporary technological society. This presents particular difficulties for those conducting armed conflict, since an asset that could *prima facie* be regarded as a legitimate military target on the basis of military objectives might also – even at the same time – be providing civilian/commercial services. It is sometimes very difficult, or indeed impossible, to 'quarantine' what is the civilian/commercial aspect of a functioning asset from the military component.

This concept is also a common feature of space technology. A combination of factors – the increasing dependence by military and strategic forces within (the major) powers on the use of satellite technology; the inability of governments to satisfy such demands for reasons associated either with costs or the lack of technological expertise (or both) and the advent of commercial satellite infrastructure and services that are responsive, technologically advanced, available and appropriate to meet these demands – means that military 'customers' are now regularly utilizing commercial satellites to undertake military activities. Given that such an increasingly important group of space assets used for military purposes are these dual-use satellites, one is also drawn to the question of whether, and in what circumstances, such a satellite can (ever) be regarded as a legitimate target of war.

The answer will depend upon a number of fundamental principles of international law. Clearly, the physical destruction of a satellite constitutes a use of force. Apart from a consideration of the principles in the United Nations Space Treaties, one would have to determine whether such an action represents a legitimate (at law) use of force, with the only possible justification being Article 51 of the United Nations Charter.

Assume, for example, that a combatant regards a dual-use satellite – for example, a GPS or remote sensing satellite – as representing a legitimate military objective in accordance with the principles of distinction and military advantage. Even if this were a correct assessment, the principle of proportionality would also apply. Moreover, one could argue that, it is implicit in the principle of distinction that the parties to a conflict are obligated to take 'all feasible precautions' to protect civilians from the effects of an attack.[55]

One can certainly envisage that the deliberate destruction of such a satellite could, even if it does not result in any immediate civilian casualties, have a devastating impact on communities, countries or even regions of the world. Millions of lives and livelihoods could, potentially, be affected, economies destroyed and essential services incapacitated. Obviously, some of the consequences of such an attack may be difficult to foresee, but it would, one could argue, be regarded at

55 J.-M. Henckaerts & L. Doswald-Beck, *Customary International Humanitarian Law – Volume 1: Rules*, Cambridge University Press 2005, p. 70. There would also be adverse environmental consequences (including significant space debris) resulting from the destruction of a satellite, and various international environmental law principles would therefore also be applicable in these circumstances.

European Journal of Law Reform 2016 (18) 1
doi: 10.5553/EJLR/138723702016018001003

the least as reckless. However, there is likely to be some uncertainty as to whether and how a 'recklessness' test is to be applied in such a situation.[56]

Overall, given the unique nature of outer space, the fundamental principles of the laws of war – developed to regulate *terrestrial* warfare and armed conflict – are probably neither sufficiently specific nor entirely appropriate for military action in outer space. Even though every effort should be made to apply the existing principles as directly as possible, the largely unprecedented nature of such circumstances means that more specific rules will almost certainly be required, if they are to provide a comprehensive framework to properly protect humanity from otherwise disastrous consequences.

D Perspectives on the Way Forward – Current and Future Initiatives

This brief discussion highlights that the international regulation of the military uses of outer space warrants very careful and rigorous consideration. Unfortunately, present indications suggest that there is an *increasing* likelihood that outer space will not only be used to facilitate armed conflict (as it already is) but might ultimately be a theatre of war, despite the efforts of the international community.[57] The proliferation of military space assets means that, from a strategic viewpoint, the disabling or destruction of satellites used by another country may be perceived as giving rise to very significant advantages. The fact that it has not happened in the past is no reason to assume that we will never see a space conflict. Clearly, it is a possibility that we must all strive to avoid.

The Outer Space Treaty does call for the peaceful use of outer space and specifies that the rules of international law apply to the exploration and use of outer space. These include not only the *jus ad bellum* principles regulating the use of force but also the principles of the laws of war. Respect for these rules is absolutely vital for the safety and security of humankind, as well as the interests of future generations. However, with the exception of those treaties that seek to ban the use and testing of certain specific types of weapons, there are uncertainties that arise when one seeks to apply, in particular, the laws of war to a space conflict.

Thus, if we are to avoid 'grey areas' in the law, and provide a framework which strengthens co-operation in outer space whilst deterring additional military pursuits in this area, it is necessary to develop specific and clear rules and standards that categorically prohibit the weaponization of outer space, as well as any form of conflict in the region of outer space and against space assets. The

56 For a discussion of the difficulties of applying the proportionality principle in the case of the 'high altitude bombing' during the NATO military action in Serbia and Kosovo in 1999, *see* S. Freeland, 'The Bombing of Kosovo and the Milosevic Trial: Reflections on Some Legal Issues', *Australian International Law Journal*, Vol. 150, 2002, pp. 165-168.

57 *See*, for example, UNGA Resolution 69/32 on No first Placement of Weapons in Outer Space (2 December 2014), which (at para. 5) '[e]ncourages all States, especially space-faring nations, to consider the possibility of upholding as appropriate a political commitment not to be the first to place weapons in outer space'.

Outer Space Treaty, as well as the other United Nations Space Treaties, do not currently provide stringent rules or incentives to prevent an arms race in outer space, let alone a conflict involving (and perhaps 'in') space. The position is, of course, further complicated by the applicability of the right of self-defence, a right that states will never abandon.

Ideally, clear definitions must be developed for concepts such as 'space weapons', and 'military uses' and, perhaps most significantly, 'peaceful purposes'. 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.

Ideally, also, binding treaty norms should be negotiated, to be adhered to in good faith by all relevant states. One initiative in this regard has been the submission, initially in 2008,[58] and with a revised version in 2014,[59] by Russia (supported by China and a number of other countries) of the Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force Against Outer Space Objects (PPWT) to the United Nations Conference on Disarmament (CD) in Geneva. However, these drafts have met with strong opposition from the United States, particularly in relation to questions of verification.

This 'treaty' approach to dealing with the militarization/weaponization of outer space is unlikely to come to fruition in the medium term, if at all, and any additional regulation that does emerge will thus only take the form of a voluntary non-binding basis. Indeed, a 'softly, softly' approach involving the development of Trust and Confidence Building Measures (TCBMs) seems to be the preferred strategy amongst many states, but this brings with it more uncertainty, a lack of formal enforcement capability and enforcement mechanisms, and the possibility of undue flexibility of approach by the main stakeholders. This approach has seen various initiatives, including the continuing discussions regarding the International Code of Conduct for Outer Space Activities[60] and, more recently, the work of a Group of Governmental Experts (GGE), which lodged its report with the UNGA in December 2013.[61] Whether these TCBMs will be sufficient to meet the complex issues remains unclear.

We thus find ourselves in 'interesting times'. The issue of the military uses of outer space, and its possible weaponization, represents one of the most politicized and complex issues of our generation. It is incumbent on all stakeholders to find a path forward, in order to meet the challenges of the 21st century. The existing international regulatory framework, whilst important, cannot alone stand up to the strains that military-related space technology imposes upon us.

58 For details, *see* S. Freeland, 'The 2008 Russia/China Proposal for a Treaty to Ban Weapons in Space: A Missed Opportunity or an Opening Gambit?' *Proceedings of the Colloquium on the Law of Outer Space*, Vol. 51, 2008, p. 261.

59 For details *see* M. Listner & R.P. Rajagopalan, 'The 2014 PPWT: A New Draft but with the Same and Different Problems', 11 August 2014, <www.thespacereview.com/article/2575/1>, accessed 1 March 2015.

60 *See* Freeland 2015.

61 *See* <www.un.org/disarmament/publications/studyseries/en/SS-34.pdf>, accessed 28 January 2015.

European Journal of Law Reform 2016 (18) 1
doi: 10.5553/EJLR/138723702016018001003

An appropriate and acceptable regulatory regime must be found – although what form that might take is still unclear. What is important is that, at all times, we must be conscious of, and continue to adhere to, the fundamental sentiment of 'humanity' that underpins space law, in order to avoid the possibility of scenarios that do not bear contemplation.