1. The background and history of space law

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1.1 A POLITICAL OVERVIEW

Space law, much like other branches of public international law and indeed international law itself, has its origins in the need to establish a certain number of more or less simple rules to govern relations between members of an increasingly organized international community, primarily the community of states. In this effort a widening number of areas on land, sea and finally air as well as new subjects, such as humanitarian ones, were covered by an ever larger body of law and treaties.

While the human mind, science, but also early examples of science fiction turned their attention early on to the space enveloping earth, outer space, there was no legal dimension to this sphere. It was only with the appearance of new technologies, in particular the development of rocket technology from theoretical beginnings to its first use as a means of warfare during the Second World War, that the possible legal aspects of this new kind of human activity began to stimulate legal thinking on this subject. As Vladimir Kopal has pointed out, many of the early writers on space law, including the author of a first comprehensive monograph on the subject, Vladimir Mandl, had a background in air law.¹ Mandl, however, points out in his study, published in Germany as early as 1932, that reaching outer space by rockets would raise a variety of new issues not settled by air law and therefore needing the creation of a new body of law.²

These writings became more numerous as the 1950s progressed and the International Geophysical Year of 1958 approached, in which a growing number of authors such as John Cobb Cooper, Rolando Quadri, Charles Chaumont, Nicolas Matte, Eugene Pépin and others argued for legal regulation of this issue. Although they could not yet produce the new international rules they were calling for, their importance resided in the fact that they already produced some kind of consensus on the nature and content of such a law.

The most powerful drive towards creating such a new branch of international law finally came from geopolitical considerations, namely the opening, in outer space, of a new field of competition and possibly confrontation of the two superpowers of the day, the United States and the Soviet Union. Their confrontation had already become much more dangerous and global as it successively left the European theatre in which, beginning with the emergence of an Iron Curtain, it had started...
and rapidly developed into a worldwide contest. Its major players were constantly in search of new areas and fields where military, political or technological advantage over the adversary could be gained. Military technology was one of the foremost areas of their competition.

The rapid development of nuclear arms was also a clear sign that in this confrontation no avenue would be left unexplored and that few limits would be respected. While, thus, land, air and sea were already theatres of an unending arms race, the question remained to what extent it might also reach into new spheres. Here, early ballistic weapons developed by a desperate Nazi Germany towards the end of the Second World War pointed in an ominous new direction. When, thus, in October of 1957, the Soviet Union managed to launch a first man-made object into outer space, it became clear that a new area of competition between the two superpowers of the day had been opened, especially as the United States had been caught quite unawares and were certain to react in one way or another.

It is not easy to speculate, even today, on the motives and ultimate reasons that made the two superpowers refrain from such an arms race and instead engage in a different sort of competition whose first, largely civilian high points were the first venture of a human being into outer space and later the peaceful landing on the moon. If in the end, therefore, such a more peaceful turn of events occurred, we can assume that next to political considerations there must also have been powerful economic ones such as the cost, even more prohibitive in those early days than today, of moving large military structures into outer space and maintaining them. Finally, space technology was still in its infant stage, lacking powerful launchers, sophisticated means of communications and intelligence.

As early as 1963, therefore, and well before the conclusion of the first major outer space treaty, general understandings were reached between the United States and the Soviet Union to ban the deployment of nuclear weapons and other weapons of mass destruction in outer space.\footnote{This would be the Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water (hereafter Partial Test Ban Treaty), Moscow, done 5 August 1963, entered into force 10 October 1963; 480 UNTS 43; TIAS No. 5433; 14 UST 1313; UKTS 1964 No. 3; ATS 1963 No. 26.} Originally in the form of a bilateral agreement, it was later welcomed by the General Assembly of the United Nations in Resolution 1884(XVIII), unanimously adopted on 17 October 1963.\footnote{Question of general and complete disarmament, UNGA Res. 1884(XVIII), of 17 October 1963; UN Doc. A/RES/18/1884. See further e.g. M.}
The way was thus opened for entering into a much wider agreement on the principles that should henceforth govern the activities of states in the exploration and peaceful uses of outer space, and here again the General Assembly set out these principles in its historic Resolution 1962(XVIII) of 13 December 1963. This led to the negotiation and signing in January 1967 of the Outer Space Treaty in London, Moscow and New York.

While geopolitical motives have thus had the strongest impact on the willingness of the international community during these otherwise highly controversial and conflict-stricken years to arrive at such a wide-reaching agreement, this should not obscure other factors which promoted this innovative process.

For the origins of air law, technological factors also had a large part to play and here interesting parallels between air and space law exist. Thus, as Isabella Diederiks-Verschoor notes in her now classic *Introduction to Space Law*, it was the Wright brothers’ engine-powered flight in 1903 that eventually led to a first series of international conferences and agreements on rules and regulations for air traffic, in particular the famous Paris Convention of 1919, preceding the later Chicago Convention of 1944.

Similarly, the first flights of man-made objects into outer space beginning with Sputnik called for an urgent need to develop the legal principles which the academic world had already requested earlier.

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14 Convention on International Civil Aviation (Chicago Convention), Chicago, done 7 December 1944, entered into force 4 April 1947; 15 UNTS 295; TIAS 1591; 61 Stat. 1180; Cmd. 6614; UKTS 1953 No. 8; ATS 1957 No. 5; ICAO Doc. 7300.
Contrary to air law, however, the time span between a first technological breakthrough and a first legal reaction was cut by half.

As another leading expert on air and space law, Bin Cheng remarked in an essay published on the 30th anniversary of the Outer Space Treaty, ‘the treaty was drawn up not only in some haste within the space of less than 12 months but also less than ten years after the launch of the earth’s first artificial satellite’.15

The signing and entry into force, shortly thereafter, of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (usually referred to as the Outer Space Treaty) thus signifies the creation of an entirely new branch of public international law, the law of outer space. This law is and remains of an original and innovative nature in many respects.

In subjecting the exercise of state sovereignty in outer space to new rules rarely to be found in the traditional pages of international law, much more strongly marked by Realpolitik, the Outer Space Treaty creates a new ethic and an entirely new spirit in the cold relations between states. Most importantly perhaps, unlike the continents and seas newly discovered by European empires and their navies in previous centuries, outer space, including the moon and all other celestial bodies, is not subject to national appropriation.16 And unlike the high seas, which since Salamis and Actium, have been among the preferred theatres of war and military, naval engagements, the exploration and uses of outer space were to be reserved for peaceful purposes only.17 It is innovative also in the sense that to this day it has attempted, albeit not always successfully, to move ahead of technological developments and to try to create a secure legal environment for future scientific or economic activities.

This ambitious design is perhaps best exemplified by the visionary dispositions of such follow-up treaties as the 1979 Moon Agreement.18 By designating in its Article 11 the moon itself, as well as its natural resources, as the ‘Common Heritage of Mankind’ (echoing, incidentally, a similar disposition for natural resources in the deep sea-bed contained in the new

15 B. Cheng, Space Objects and Their Various Connecting Factors, in Outlook on Space Law over the Next 30 Years (Eds. G. Lafferranderie & D. Crowther) (1997), 203.
16 See Art. II, Outer Space Treaty, supra n. 11.
17 Cf. e.g. Art. III, Outer Space Treaty, supra n. 11.
law of the sea\textsuperscript{19} a step was certainly made towards a future, more broadly designed regime for such resources. The scope for such a regime would even be wider as the provisions of the Moon Agreement are also applicable to other celestial bodies within the solar system other than the earth.\textsuperscript{20} Not surprisingly, this treaty has, although adopted unanimously by the General Assembly of the United Nations and although it could enter into force some years later, found to this day only a handful of states willing to ratify it and thus endorse the principles it contains.

Among the many new and path-breaking principles contained in the 1967 Outer Space Treaty special attention is due to its Article VI which incorporated the principle of international responsibility of states for national space activities, whether such activities are carried out by governmental agencies or by non-governmental entities. It also stipulates that national space activities are carried out in conformity with the provisions of the Outer Space Treaty. The wording of this principle emerged as a compromise formula which reconciled the then strongly opposed views of those, like the Soviet Union, wishing to reserve space activities to states only, and those, like the United States and other Western powers, advocating and allowing access to space and space activities to non-state actors as well.

During the period of 12 years that followed the entry into force of the 1967 Outer Space Treaty four other major space treaties were concluded at the United Nations. Here the finalization and signature of an Agreement on the Rescue of Astronauts, the Return of Astronauts and Return of Objects Launched into Outer Space, in short the 1968 Rescue Agreement,\textsuperscript{21} was accelerated by a tragic space event that occurred just on the day of the signature of the Outer Space Treaty.\textsuperscript{22}


\textsuperscript{20} See Art. 1(1), Moon Agreement, \textit{supra} n. 18.

\textsuperscript{21} Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space (hereafter Rescue Agreement), London/Moscow/Washington, done 22 April 1968, entered into force 3 December 1968; 672 UNTS 119; TIAS 6599; 19 UST 7570; UKTS 1969 No. 56; Cmnd. 3786; ATS 1986 No. 8; 7 ILM 151 (1968).

\textsuperscript{22} On 27 January 1967 the crew of Apollo 1, Roger Chaffee, Ed White and Gus Grissom, were killed by a fire that broke out during a ‘plugs-out-test’ of their spacecraft in their space capsule.
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The next and third of the space treaties originating from within the United Nations, the 1972 Liability Convention, is considered to be one of the most interesting instruments from a purely legal point of view. The Liability Convention is based on two different legal principles: the principle of absolute liability of the launching state, which shall be obliged to pay compensation for damage caused by its space object on the surface of the earth or to aircraft in flight, on the other hand it also contains the principle of liability based on fault in the event of damage caused elsewhere.

The fourth UN treaty, the 1975 Registration Convention, had as its main objective the implementation of the principles that had already been spelled out in less detail in Article VIII of the Outer Space Treaty.

When drafting the terms of the fifth legal instrument, the 1979 Moon Agreement, in the late 1970s negotiators again elaborated on a number of principles already found in the 1967 Outer Space Treaty. But when negotiating this Agreement, the drafters, in dealing with the status of the natural resources of the moon, were not in a position to rely on the Outer Space Treaty as, in this respect, the Treaty remains mostly silent.

As opinions on this matter diverged, a generally acceptable compromise was found by joining confirmation of the freedom of scientific investigation, the exploitation and use of the moon as a right of all states with the stipulation to establish an international regime governing the

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24 See esp. Art. II, IV(1.a), Liability Convention, supra n. 23.
25 See esp. Art. III, IV(1.b), Liability Convention, supra n. 23.
26 Convention on Registration of Objects Launched into Outer Space (hereafter Registration Convention), New York, done 14 January 1975, entered into force 15 September 1975; 1023 UNTS 15; TIAS 8480; 28 UST 695; UKTS 1978 No. 70; Cmnd. 6256; ATS 1986 No. 5; 14 ILM 43 (1975).
27 Art. VIII, Outer Space Treaty, supra n. 11, provided in relevant part: ‘A State Party to the Treaty on whose registry an object launched into outer space is carried shall retain jurisdiction and control over such object, and over any personnel thereof, while in outer space or on a celestial body … Such objects or component parts found beyond the limits of the State Party to the Treaty on whose registry they are carried shall be returned to that State Party, which shall, upon request, furnish identifying data prior to their return.’
exploitation of the natural resources of the moon, as such exploitation might become feasible.\textsuperscript{28}

With the conclusion of the Moon Agreement the early and dynamic phase of UN law making by treaties in the field of outer space had come to an end. This did, not, however, mean that efforts of the world organization to create multilateral rules for this new dimension of human activity had totally ceased.\textsuperscript{29} The United Nations now turned or rather returned to the practice of declaring legal principles for space by Resolutions of the General Assembly, a practice it had already employed in the period that preceded the adoption of the five outer space treaties.

But while the first of these Resolutions, in particular Resolution 1962(XVIII) of 13 December 1963, had the objective of launching the process of international cooperation in space and thus creating a basis for a space legislation process later, now the establishment of a number of sets of principles by UN General Assembly Resolutions had to regulate more special and more technical categories of space activities. In this way the sets of principles elaborated and adopted by the General Assembly included principles governing television broadcasting (1982),\textsuperscript{30} remote sensing of the earth from space (1986),\textsuperscript{31} the use of nuclear power sources in outer space (1992)\textsuperscript{32} and a Declaration on international cooperation for the benefit and in the interest of all states, taking into particular account the needs of developing countries (1996).\textsuperscript{33}

These sets of principles, while based to a large degree on the previous space treaties, particularly the Outer Space Treaty, are not legally binding – Resolutions of the General Assembly, which are simply recommendations to member states lacking this force.\textsuperscript{34} Principles thus adopted,

\begin{itemize}
\item \textsuperscript{28} See esp. Art. 6(1) resp. Art. 11(5), Moon Agreement, suprad supra n. 18.
\item \textsuperscript{29} See further infra, § 1.3.
\item \textsuperscript{30} Principles Governing the Use by States of Artificial Earth Satellites for International Direct Television Broadcasting, UNGA Res. 37/92, of 10 December 1982; UN Doc. A/AC.105/572/Rev.1, at 39.
\item \textsuperscript{31} Principles Relating to Remote Sensing of the Earth from Outer Space, UNGA Res. 41/65, of 3 December 1986; UN Doc. A/AC.105/572/Rev.1, at 43; 25 ILM 1334 (1986).
\item \textsuperscript{32} Principles Relevant to the Use of Nuclear Power Sources in Outer Space, UNGA Res. 47/68, of 14 December 1992; UN Doc. A/AC.105/572/Rev.1, at 47.
\item \textsuperscript{33} 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, UNGA Res. 51/122, of 13 December 1996; UN Doc. A/RES/51/122.
\item \textsuperscript{34} See A.D. Terekhov, UN General Assembly Resolutions and Space Law, in Proceedings of the Fortieth Colloquium on the Law of Outer Space (1998), 14; V.
\end{itemize}
however – most of them by consensus – still form a code of conduct and reflect a wide legal conviction of the present international space community on special categories of space activities.

These General Assembly Resolutions if followed, as is the case, by a constant practice of states and international organizations, may play a significant role either in establishing customary rules of international law\textsuperscript{35} or serve as a basis for future international negotiations on treaties to regulate the same subjects but this time in a legally binding manner.

\subsection{1.2 SPACE LAW AND THE NEW MAJORITY IN THE UNITED NATIONS}

While it was earlier the security concerns of the major space powers that overshadowed and influenced the development of space law, the ‘new majority’ of developing countries from Africa, Asia and Latin America that became dominant in the United Nations from the 1960s onwards brought a different kind of concern to these deliberations. Developing nations saw a need to use this new technology for the benefit of their economic and social advancement. There was, in particular, a fear that space benefits would remain limited to a small number of advanced, industrialized countries. This view was clearly echoed by U Thant who, as Secretary-General of the United Nations, submitted to the 1968 Vienna Conference on the Exploration and Peaceful Uses of Outer Space a Memorandum in which he warned participants that ‘the space age was increasing the gap between the developed and the developing areas at an alarming rate’.\textsuperscript{36}

An effort was therefore made to give space law or basic principles of space law a direction that would also benefit developing countries. One of the best reflections of this effort can be seen in a Declaration adopted in 1996 whose lengthy title is an appeal, couched in some legal terms, to conduct the exploration and uses of outer space ‘for the Benefit and in the Interest of All States, Taking into Particular Account the Needs of

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Developing Countries’.\textsuperscript{37} It certainly reflects a further stage of the North–South debate on space cooperation, without, however, marking, as some authors believe,\textsuperscript{38} an end to it, and the role of space law in this regard.

What it certainly does do is to combine the principle of the freedom of the exploration and utilization of outer space with a reminder to space powers to fulfil their obligation to conduct these activities for the benefit of all countries.\textsuperscript{39} Space powers should foster international cooperation on an equitable and mutually acceptable basis. Developing countries newly interested in space activities might thus be motivated to pool their energies so as to develop common strategies towards outer space, that could also include efforts towards better legal regulations.

1.3 SPACE LAW AND THE UNITED NATIONS

In apparent contrast to the creation of other, earlier bodies of international law, an international organization with a broad, all-encompassing mandate like the United Nations, established to ‘maintain international peace and security’ and to encourage the ‘progressive development of international law and its codification’ became the first and primary source of space law.\textsuperscript{40} This was also obvious in view of the global reach of space activities, which from their onset required a high degree of international cooperation that, by its nature, could only be found and practised in a universal organization like the United Nations.

It was therefore a natural course of events that as early as 1958, shortly after the launch of the first man-made space object, the General Assembly created an Ad Hoc Committee on the Peaceful Uses of Outer Space, made up of 18 members who were to study the technical, legal and other aspects brought about by the appearance of the first satellites.\textsuperscript{41} The Ad

\textsuperscript{37} Preamble, 10th para., UN GA Res. 51/122, supra n. 33; see also Annex, sub 1.

\textsuperscript{38} Cf. e.g. V. Liebig & K.U. Schrogl, Space Applications and Policies for the New Century (2000), 137.

\textsuperscript{39} Cf. also Art. I, Outer Space Treaty, supra n. 11.

\textsuperscript{40} Art. 1(1) resp. Art. 13(1.a), Charter of the United Nations (hereafter UN Charter), San Francisco, done 26 June 1945, entered into force 24 October 1945; USTS 993; 24 UST 2225; 59 Stat. 1031; 145 UKTS 805; UKTS 1946 No. 67; Cmd. 6666 & 6711; CTS 1945 No. 7; ATS 1945 No. 1.

\textsuperscript{41} See Question of the peaceful use of outer space, UNGA Res. 1348(XIII), of 13 December 1958; Resolutions adopted on the reports of the First Committee, General Assembly – Thirteenth Session, at 5.
Hoc Committee met for the first time on 6 May 1959, and it established two Sub-Committees – one scientific and technical, and one legal – and submitted a report which became part of a final report of the Ad Hoc Committee approved on 25 June 1959.\(^4\)

The Ad Hoc Committee became permanent by General Assembly Resolution 1472(XIV) of 12 December 1959,\(^4\) but not without Cold War controversies marring its beginnings. The Soviet Union first boycotted the Committee for not being sufficiently representative, also asking that its decisions be made by consensus rather than by majority vote as the West had suggested. An agreement was finally reached to create a Committee of 24 members that was designed as a subsidiary body of the General Assembly, to which it was to report, thus underlining its strongly political character.

Cold War politics were also decisive in attributing leadership in a Committee in which a careful balance between East and West was to be achieved. Austria, a neutral country, was chosen to take the chair of the main Committee, now called COPUOS; the other members of the bureau being Romania as Vice-Chair and Brazil as Rapporteur.\(^4\) A certain balance between East and West was also maintained in attributing the chairs of the two Sub-Committees of COPUOS, the Legal Sub-Committee long having been chaired by a representative of Eastern countries, while the chair of the Scientific and Technical Sub-Committee remained in the hands of the Western group of countries.

A special case was China, which, for a number of years, after the People’s Republic had had its membership of the United Nations restored, had refused to join the Committee, which it considered to be too strongly dominated by a Soviet-American tandem. However, it later took its seat as Chinese space programmes began to develop and as more and more member states of the United Nations took part in its work.

Still, the Cold War configuration of COPUOS was to remain unchanged well into the period after the end of the Cold War, when ultimately the usual system of rotating chairmanships was adopted by the Committee. The Committee, after some protracted negotiations, had


\(^4\) International co-operation in the peaceful uses of outer space, UNGA Res. 1472(XIV) A, of 12 December 1959; Resolutions adopted on the reports of the First Committee, General Assembly – Fourteenth Session, at 5.

finally adopted the practice of consensus for its decision making in 1962 when the Chair of COPUOS, Ambassador Franz Matsch of Austria, read the following statement into its record:

I should like to place on record that through informal consultations it has been agreed among the members of the Committee that it will be the aim of all members of the Committee and its sub-Committees to conduct the Committee’s work in such a way that the Committee will be able to reach agreement in its work without need for voting.45

The UN Committee on the Peaceful Uses of Outer Space was the first UN standing body to use this procedure in its purest form. The fact that all the space law agreements drafted in its Legal Sub-Committee were therefore adopted by consensus, although this methodology sometimes slowed down negotiations, provided them with broad international acceptance, particularly from the major space powers, who could thus identify with the compromise solutions found in the Committee. The fact that today – with one exception – the majority of outer space treaties are accepted by a large number of states also testifies to this.

Thus the Outer Space Treaty itself today has 102 states parties, 26 others having already signed it.46 The Rescue Agreement has 92 states parties and has been signed by 24 additional states, while two international organizations have declared their acceptance of the rights and obligations established under this Agreement.47 Similarly, 89 states are now parties to the Liability Convention and 60 states are parties to the Registration Convention.48 In both cases there are also numerous additional signatory states and international organizations accepting rights and obligations deriving from them. The only exception so far is the Moon Agreement with a meagre 15 states parties and four more states signatories to it.49

The importance of the legislative work of the Committee and particularly its Legal Sub-Committee was also underlined by the fact that its proceedings were recorded verbatim until 1985, a privilege only enjoyed by such important organs of the General Assembly as its First Committee and of course the Assembly itself.

47 Ibid.
48 Ibid.
49 Ibid.
The adoption and consequential practice of the consensus rule was, however, not the main reason why the legislative functions of the Committee and its legal sub-body have been grinding almost to a complete halt in recent years. One major reason for this development was a new ideology, triggering a massive political movement that first surfaced in some major, mostly Western, parts of the developed world and then became more general. Under various brand names and slogans like ‘supply-side economics’, its principal aim was to liberalize and deregulate national and international markets and as a consequence reduce the influence of states and governments in economic and social matters. Not by coincidence, these policies were generally also referred to as the ‘Washington Consensus’.50

Such an atmosphere was certainly not conducive to the acceptance of new rules and regulations in outer space, which at the same time experienced the massive entry of particularly aggressive private sector players, motivated by expectations of rapid growth and quick economic benefit. Much of the resistance to the introduction of new legal frameworks therefore came from these new players as well as from governments displaying an ever higher degree of reluctance to enter into new treaty commitments of a multilateral character.

One of the best examples to illustrate this change in political atmosphere was the lamentable fate of the Moon Agreement. Although first adopted unanimously by the General Assembly of the United Nations in Resolution 34/68 of 5 December 1979,51 the United States and all other Western powers joining in this consensus, this later change in political atmosphere created new and unforeseen barriers to its ratification, many of its provisions now seeming to be in contrast to a more market-friendly world.

Next to a changed economic philosophy, more assertive national interests have also played their part: more powerful national space agencies, not least those operating in some of the most technologically advanced countries, apparently saw little merit in accepting new legal obligations of an international character and preferred to cast their international relations in bilateral form. This was also true, for instance, as far as responsibilities to support efforts of developing countries to become users of space technology were concerned.

51 Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, UNGA Res. 34/68, of 5 December 1979; UN Doc. A/34/20.
The clearest rejection of new multilateral treaty making came from the United States, which, in its new National Space Policy adopted in 2006, stated that ‘the United States will oppose the development of new legal regimes or other restrictions that seek to prohibit or limit US access to or use of Outer Space’.\footnote{National Space Policy of the United States of America, of 31 August 2006, Section II, Principles, para. 7, available at www.whitehouse.gov/sites/default/files/microsites/ostp/national-space-policy-2006.pdf, last accessed 2 January 2014.}

At the same time, however, technological progress as well as new and multiple uses of outer space continued, creating new problems and challenges for which legal solutions were just as important as technical ones. And in the same way that it remains beyond doubt that economic globalization, particularly after the experience of the last great crisis, cannot safely and successfully function without some degree of regulation, the global nature of space cooperation certainly required a minimum of universally accepted rules to stay on course and to avoid lawlessness, chaos and conflict in outer space.

\subsection*{1.4 SPACE LAW AND SPACE ARMS CONTROL\footnote{This section draws in its substance from a paper ‘Arms Control in Outer Space: The Need for New Legal Action’ which the author presented to an SIPRI Symposium ‘Outer Space – can Militarization be checked’, held in Stockholm, 21–23 September 1983; see Space Weapons – The Arms Control Dilemma (Ed. B. Jasani) (1984), 173 ff.}}

The Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water (better known as the Partial Test Ban Treaty\footnote{Partial Test Ban Treaty, supra n. 8.}) concluded in August 1963, which has since attracted 126 states parties (a few more having just signed it),\footnote{See http://en.wikipedia.org/wiki/List_of_parties_to_the_Partial_Test_Ban_Treaty, last accessed 2 January 2014.} was the first legally binding international instrument that clearly acknowledged the fact that outer space constitutes a new dimension in international security, deserving attention no less than that given to other, more terrestrial ones.

An even clearer link of that kind was created by the Outer Space Treaty of 1967. Prohibiting the placing in orbit around the earth or stationing in outer space of any objects carrying nuclear weapons or other weapons of mass destruction, the installation of such weapons on celestial bodies or the stationing of such weapons in outer space in any
other manner, it subjected outer space – in a manner relevant to its special nature – to a new body of arms control measures designed to exclude the use of nuclear weapons or other weapons of mass destruction.

While these treaty commitments certainly go some way towards creating a special status for outer space and could be seen as a first element in the building of a new and at least nuclear weapon-free ‘sanctuary’, they are first and foremost not much more than an extraterrestrial extension of arms control measures designed for more traditional theatres of warfare. They are therefore only to a minor degree addressed to the new possibilities offered by this medium.

A somewhat larger perspective is offered by the further provisions of Article IV of the 1967 Outer Space Treaty, which explicitly outlaws ‘the establishment of military bases, installations and fortifications, the testing of any kind of weapons and the conduct of military manoeuvres on celestial bodies’. These provisions – although limited to celestial bodies and in particular the moon – constitute a somewhat rudimentary but conceptually more hopeful design of an outer space environment placed outside terrestrial battlegrounds.

These provisions are strengthened by the arms control article of the Moon Agreement, which not only repeats the prohibitions concerning nuclear weapons and weapons of mass destruction contained in Article IV of the Outer Space Treaty, but also prohibits ‘any threat or use of force or any other hostile act or threat of hostile act on the Moon’. It likewise prohibits ‘use [of] 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 man-made space objects’. The importance and weight of these provisions is also underscored by the fact that the 1967 Outer Space Treaty as well as the 1979 Moon Agreement were the fruit of an intensive international legislative effort, conceived and negotiated multilaterally in the Committee on the Peaceful Uses of Outer Space and later adopted unanimously by the General Assembly of the United Nations.

In contrast to it, two further international agreements that had added to these beginnings of arms control provisions for outer space have resulted from bilateral arms control negotiations between the United States and the Soviet Union. These are the 1972 US–Soviet Treaty on the limitation

56 See Art. IV, Outer Space Treaty, supra n. 11.
57 Art. 3(2), Moon Agreement, supra n. 18.
58 Ibid.
of anti-ballistic missile systems, the ABM Treaty,\textsuperscript{59} which also prohibited the deployment of ABM systems in outer space, and the Strategic Arms Limitation Treaty (SALT I) Agreement.\textsuperscript{60} Both treaties established the principle of ‘non-interference’ with the so-called ‘national technical means of verification’.\textsuperscript{61}

The provisions contained in these two bilateral agreements constituted, at the time they were passed, a further step in arms control for outer space as for the first time they addressed themselves not only to the extension of weapons systems existing on earth to outer space but also to the protection of technologies which – if we assume that national technical means of verification included satellites – are typical for the space environment only. Although their scope was limited due to the fact that at the time of their adoption there were only these two countries able to deploy such space objects, and although the United States later withdrew from the ABM Treaty,\textsuperscript{62} they provided important indications on the direction and extensions a more complete system of arms control provisions for outer space would have to take.

Indeed the principle of non-interference with national technical means of verification\textsuperscript{63} was not only incorporated in other bilateral US–Soviet arms control treaties such as the 1987 Intermediate Nuclear Forces (INF) Treaty,\textsuperscript{64} but also remained on the agenda of subsequent discussions.

\textsuperscript{59} Treaty Between the United States of America and the Union of Socialist Soviet Republics on the Limitation of Anti-Ballistic Missile Systems (hereafter ABM Treaty), Moscow, done 26 May 1972, entered into force 3 October 1972, no longer in effect 13 June 2002; 944 UNTS 13; TIAS No. 7503; 23 UST 3435.

\textsuperscript{60} Interim Agreement on Certain Measures with Respect to the Limitation of Strategic Arms (hereafter SALT I Agreement), Moscow, done 26 May 1972, entered into force 3 October 1972; TIAS 7504; 23 UST 3462.

\textsuperscript{61} See Art. XII(2), ABM Treaty, supra n. 59, resp. Art. V(2), SALT I Agreement, supra n. 60.

\textsuperscript{62} On 13 December 2001 US President George W. Bush notified Russia of the US withdrawal from the ABM Treaty in accordance with the clause that required six months’ notice before terminating the agreement. President Bush stated that ‘I have concluded the ABM treaty hinders our government’s ability to develop ways to protect our people from future terrorist or rogue state missile attacks’; cf. http://articles.cnn.com/2001-12-13/politics/rec.bush.abm_1_abm-treaty-rogue-state-missile-attacks-anti-ballistic-missile-treaty?_s=PM:ALLPOLITICS, last accessed 2 January 2014. The US withdrawal took effect from June 2002.


\textsuperscript{64} Treaty Between the United States of America and the Union of Socialist Soviet Republics on the Elimination of Their Intermediate-Range and Shorter-Range Missiles (hereafter INF Treaty), Washington, done 8 December 1987,
under the Strategic Arms Reduction Treaty (START I), as well as others like the Comprehensive Test Ban Treaty.

A look at this existing body of space arms control provisions shows a picture that is certainly incomplete and lacks a coherent approach. This becomes even more obvious when one considers that none of the treaties and agreements mentioned above is specifically and exclusively directed at arms control in space but contains such provisions rather as a by-product of other concepts. An analysis of this body of law will also have to focus on the philosophy and motivations that lie behind these provisions. Here again it appears difficult to identify a unifying concept.

As pointed out above, some elements of these provisions suggest that there may indeed have been some effort towards the concept of a fully demilitarized 'sanctuary', moving well beyond terrestrial concepts of arms control, deterrence or military balance. While also incomplete and not devoid of loopholes, the provisions relating to the moon and other celestial bodies bear closest resemblance to the concept of 'sanctuarization'. Other provisions, however, rather suggest the idea that outer space is being regarded as a kind of support area for earth-based military – and of course civilian – activities, but that at least some specific rules and regulations should serve to govern its use.

This conceptual ambiguity is hardly surprising given the diversity of the actors concerned, a diversity clearest not perhaps among the architects of the multilateral treaties, but between the two major space powers of the times who pursued hugely different interests and policies. Difficult as it may be to identify some coherent concept or philosophy behind these various provisions, it appears all the same that – with all caution that has to be exercised in offering judgement on these matters – they all suggest a measure of restraint in the military uses of outer space as even the incomplete measures adopted originally were certainly supposed to avoid the conversion of outer space into one of the full-scale battlefields of the future.


67 Cf. e.g. Art. IV(2), Outer Space Treaty, supra n. 11; Art. 3, Moon Agreement, supra n. 18.
As in other fields concerning basic rules of space law, however, progress in devising new pages of space law to maintain its peaceful character and limit its military uses was just as slow and hesitating and no new agreements could therefore be concluded. In particular, talks between the United States and the Soviet Union on anti-satellite (ASAT) weapons, which were conducted in three rounds from June 1978 to June 1979, were suspended without any tangible success, although it was hoped at the time that an ASAT agreement would be reached and could be signed at the same time as the SALT II Treaty. While the suspension of these talks perhaps owed more to the world political situation of the times – in particular to the freezing of East–West relations after the Soviet invasion of Afghanistan – than to the subject matter itself, the fact remains that no serious effort was made in the following years to reopen these negotiations.

The same lack of progress characterized the various multilateral bodies in which the problems of arms control in outer space were to be addressed. Chief among them, the first two Special Sessions of the General Assembly of the United Nations devoted to disarmament held in 1978 and 1982, while not failing to recognize the dangers of a potential arms race in outer space and while calling for further measures to be taken and international negotiations to be held in order to prevent such a development, did not produce any new agreements on the matter. In view of the remarkable reluctance of many of those concerned to seriously tackle the issue of arms control in outer space, it was not surprising that it was only in 1982 and after protracted negotiations that the Committee on Disarmament of the United Nations, the predecessor of the current UN Conference on Disarmament (CD), finally came to the conclusion that the prevention of an arms race in outer space should be put on its agenda. The Committee on the Peaceful Uses of Outer Space, while inhibited by its mandate from taking up matters of arms control in outer space and putting them on its agenda, thus became one of the main

fora for the expression of international movements of concern on developments threatening the uses of outer space for peaceful purposes.

Similarly, the Second United Nations Conference on the Exploration and Peaceful Uses of Outer Space, held in Vienna in August 1982, urged in its report ‘all nations, in particular those with major space capabilities … to contribute actively to the goal of preventing an arms race in Outer Space and to refrain from any action contrary to that aim’.71 However, all these appeals, including a host of General Assembly resolutions to prevent an arms race in space, did not produce any new agreements in the only UN body legitimated to engage in multilateral talks on disarmament and arms control. Although it finally entered into negotiations on the prevention of an arms race in space, now generally referred to as the PAROS issue,72 these negotiations, which had made some progress, collapsed in 1995 after a disagreement between China and the United States. At that time the CD had been negotiating a Fissile Material Cut-off Treaty (FMCT),73 which was near completion and in which the United States had shown great interest. China insisted that it would support that item only if the PAROS issue was to be considered at the same time. The United States, then under the Bush administration, had, however, argued consistently that there was no space race and that there was therefore no need to negotiate on the prevention of an arms race in outer space.74

This conflict was carried forward into the new century, the CD having been blocked by this as well as many other issues and regularly unable to even agree on an agenda for its annual meetings in Geneva.75

72 ‘PAROS’ stands for ‘Prevention of an Arms Race in Outer Space’.
75 See further infra, § 6.7; concerns towards a progressive weaponization of outer space and attacks against space objects have grown in the past years, resulting in discussions with the CD and COPUOS and also in legal proposals, such as the Russo-Chinese Draft PPWT Treaty (Draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force Against
As this short history shows, initial efforts to use space law and ambitious multilateral treaties like the Moon Agreement to create a secure space environment, prevent an arms race in space and provide outer space with a special status, have been aborted at a rather early moment and left space arms control provisions as an unfinished torso. While it is certainly a kind of ‘Nuclear Free Zone’ similar to such zones on earthly continents, few further steps to shield it from armed conflict of a non-nuclear character have been accomplished.

The reasons why states were and to a large extent still are reluctant to discuss and accept an arms control treaty covering outer space can be found first and foremost in unwillingness to abandon or expose the technical and military advantages that the uses of outer space generate and that have generally been acquired at the cost of huge financial investments, especially as far as advanced military technology in space is concerned. Such concerns obviously make a global agreement complicated.

What actually exists in the form of rudimentary arms control provisions appears all the more outdated and near-obsolete in the face of the dynamic development of space uses, space technology and the concurrent total dependence of the contemporary world system on space-based technology for its functioning and even survival.

1.5 NEW BRANCHES OF SPACE LAW: AN UNFINISHED HISTORY

If the history of the development of space law and the emergence of new rules to govern space activities as well as relations between old and new actors in space, particularly private actors as opposed to the original state actors, did not stop after 1979, the year of the adoption of the last of the great space treaties, the reason was the growing importance of space and space technologies in world affairs and the interests of a growing number of states and international organizations. These interests led to the adoption by a variety of new actors of new norms, which of course took somewhat different forms from the traditional sources of space law, much as their influence made itself felt. The development of such norms also became necessary as space law as it was originally conceived was only
considered as an instrument regulating relations between states with no other actors present in space, originally for mainly economic but also military reasons.\textsuperscript{76}

The opening of space for many other activities than those of states using them originally for their political or military purposes made it necessary to specify new types of regulations and frameworks, many of them technical and scientific, that were not covered by the space treaties. First among such new norms, creating also some legal obligations, were the wide varieties of bilateral treaties regulating space cooperation between states and governmental space agencies. The United States alone had already then concluded, following a count made in the late 1990s by Eileen Galloway,\textsuperscript{77} more than 1,000 technical and scientific agreements with some 100 countries and international organizations, and the number keeps increasing.

Such norms also emanated from a variety of new space cooperation departures such as INTELSAT\textsuperscript{78} or INMARSAT,\textsuperscript{79} formerly public satellite operators that are now privatized, or INTERSPUTNIK,\textsuperscript{80} which from the 1970s onwards concluded agreements that created not only legal obligations among its members but could also be seen as addressing the regulation of specific aspects of space uses and space cooperation. In a similar manner such rules and regulations concerning specific areas of space uses and cooperation also originated from the International Telecommunication Union (ITU).\textsuperscript{81}

\textsuperscript{76} Cf. further infra, § 2.2.2.2.
\textsuperscript{78} INTELSAT was originally established as an intergovernmental satellite operator, until its operations were privatized in the early 2000s; see further infra, § 5.4.
\textsuperscript{79} INMARSAT was originally established as an intergovernmental satellite operator, until its operations were privatized in the early 2000s; see further infra, § 5.5.
\textsuperscript{80} INTERSPUTNIK was established in 1971 by the Agreement on the Establishment of the ‘INTERSPUTNIK’ International System and Organization of Space Communications (hereafter INTERSPUTNIK Agreement), Moscow, done 15 November 1971, entered into force 12 July 1972; 862 UNTS 3; TIAS 859 (1973) No. 12343; Space Law – Basic Legal Documents, C.VIII.1; see further infra, § 5.7.
\textsuperscript{81} The ITU is currently based on the Constitution of the International Telecommunication Union (hereafter ITU Constitution), Geneva, done 22 December 1992, entered into force 1 July 1994; 1825 UNTS 1; UKTS 1996 No.
Of even more significance in this respect was certainly the creation of the European Space Agency, whose Convention entered into force in 1980, to guide the activities of European states in space matters, in particular ‘to pursue and to strengthen European cooperation, for exclusively peaceful purposes, in space research and technology and their space applications’. While built on the basic respect for the legal framework existing in space, in particular for the peaceful uses of outer space, it certainly became one of the most influential and most powerful among the new actors, not only in the implementation, but also in the progressive development of new norms governing the cooperation of states as well as non-state actors in space matters.

Having been invested by its Convention with legal personality the Agency was also empowered to ‘cooperate with other international organisations and institutions and with Governments, organisations and institutions of non-member States, and conclude agreements with them to this effect’. While it remains debatable whether the wide and fragmented body of agreements and legal obligations regulating the relations between ESA and its member countries, as well as the host of agreements concluded between ESA and many governments and governmental space agencies, can be characterized as ‘space law’, they must certainly be considered as an important contribution to creating a stable and transparent legal framework for many types of space operations.

The latest effort in this direction comes from the European Union, which, with the entry into force of the Treaty of Lisbon, giving it a
shared competence in space matters, has become a potential major player in this field. By proposing an international Code of Conduct for Outer Space Activities to address many aspects of security, safety and sustainability in space, the European Union offered to enter the domain of space rule making, albeit starting from the very beginning with a soft-law instrument of a non-binding character. Although the fate of the EU Code of Conduct remains uncertain at the time of writing, this undertaking provides a good impression of the possible role of actors such as the European Union in further developments of space law.

So certainly, in the realm of space law, as some authors have remarked, ‘international intergovernmental organizations such as the European Space Agency, the International Telecommunication Union (ITU) and more recently the European Union play an important regulatory, administrative and legal role at the international level’. And their addition that ‘the development of international law has also extended to private non-governmental entities and even to individuals’ certainly also extends to space law.

Another relatively new page in the development of space law is the national space legislation in the strict sense of the word, where again the United States took a leading and path-breaking role with its National Aeronautics and Space Act of 29 July 1958. The political importance of this legislative innovation was underscored by the fact that the body of the US Senate at this time dealing with space matters, the Senate Special

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89 S. Freeland, The Role of ‘Soft Law’ in Public International Law and its Relevance to the International Legal Regulation of Outer Space, in Soft Law in Outer Space (Ed. I. Marboe) (2012), 11.

90 Ibid.

Committee on Space and Aeronautics,\textsuperscript{92} was chaired by no other than Senator Lyndon B. Johnson.

Today national space legislation is a rapidly expanding branch of a particular type of space law as more and more states in Europe and other parts of the world adopt national rules, which, based on international space law, create a framework for the authorization of governmental but also private space activities.\textsuperscript{93}

The importance of national space legislation as a new avenue to promote the principles of space law was also recognized by the General Assembly of the United Nations in Resolution 63/90.\textsuperscript{94} As a follow-up a working group of the Legal Sub-Committee of COPUOS in accordance with a multi-year work plan entered into a most productive exchange of information on national legislation relevant to the peaceful exploration and uses of outer space.\textsuperscript{95} While national space legislation cannot be considered as a totally new branch of space law, it contributes, as some authors have stated, ‘considerably to the transparency of the procedures of authorization. Even if such legislation is not mandated by the Outer Space Treaty, it is an important means of ensuring responsible and transparent implementation of the international obligations of the states concerning authorization of space activities carried out by non-governmental entities.’\textsuperscript{96}

An overall review of these new branches and types of space law leads to the conclusion expressed currently by many authors that, as a consequence of the reduced and virtually complete standstill of the codification process in space law making there now appears ‘a tendency to produce relevant international instruments containing non-binding principles, norms, standards or other statements of expected behaviour in

\begin{itemize}
  \item See further infra, Chapters 3 and 4.
  \item International cooperation in the peaceful uses of outer space, UNGA Res. 63/90, of 18 December 2008; UN Doc. A/RES/63/90.
\end{itemize}
the form of recommendations, charters, terms of reference, guidelines, codes of conduct’.97 In the words of this author: “this phenomenon has been qualified as “soft law”, a term that can be defined, according to leading authors, as “all those social rules generated by State[s] or other subjects of international law which are not legally binding but which are nevertheless of special legal relevance””.98

The international community has certainly not remained totally oblivious to these new developments and challenges. Many of these issues were addressed by the last great UN Conference on the Exploration and Peaceful Uses of Outer Space held in Vienna in July of 1999, which recommended several measures such as reviewing the existing treaties and their interpretation, thus clarifying problematic areas with the aim of making them more widely acceptable.99 It also recommended dealing with a variety of issues raised by the commercialization and privatization of space activities as well as working on proposals to cover new and expanding areas of space activities to meet further regulatory challenges. It also called for the adoption of new methods of regulating complex technical issues.

Many of these issues also remain on the agenda of the UN Committee on the Peaceful Uses of Outer Space and its Legal Sub-Committee, although it is here that the reluctance of many of the current space powers to enter into new and binding legal obligations can be most strongly felt. Over most of the past years the Committee, while considering some important legal matters that could have required new sets of regulations, has been unable to achieve concrete results in these matters.

Last but not least, such issues also were and continue to be regularly addressed by important non-governmental organizations of the space world such as the International Institute of Space Law (IISL),100 the Space Law Committee of the International Law Association (ILA)101 or the European Centre for Space Law (ECSL).102

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100 See further www.iisweb.org, last accessed 12 April 2014.
102 See further www.esa.int/SPECIALS/ECSL/, last accessed 12 April 2014.
The increasing pace of commercialization of space activities driven by ever more numerous private actors will have or already has left a permanent impact on international space law, which, at its origins, was intended to regulate relations between states or state actors only. Many issues related to private space activities such as property rights, intellectual property rights, liability of non-governmental entities, insurance, legal status of space tourists and others require adequate regulation, especially as future advances in space technology can be expected. These new issues have already, although to a limited degree, resulted in the introduction of certain elements of private international law into new space regimes such as the UNIDROIT Space Assets Protocol\textsuperscript{103} or the Permanent Court of Arbitration (PCA) Rules on Outer Space Disputes.\textsuperscript{104} Some authors, in this context, have also argued for the creation of a separate branch of international private law in the form of 'international space private law'.\textsuperscript{105}

1.6 THE FUTURE OF SPACE LAW

There is a significant degree of agreement between authors dealing with space law that the progressive development and codification of the law of space has moved through several stages, of which only the first one produced a number of binding legal instruments in the form of the five classical space treaties, in addition to which contiguous legal instruments, such as the Partial Test Ban Treaty of 1963, although only partially addressing outer space, can also be considered as part of this core corpus juris spatialis.

In the subsequent stages, the history of space law displays an increasing number of less-binding norms of varying origins, only a small number of which have received the more universal cover of Resolutions of the General Assembly of the United Nations, most of them, however, entering the field from other sources.

As some authors argue, both processes constitute a unitary development in view of the common origin of all these rules resting, despite their diversity and difference of purpose, on the main principles of the law of space as spelled out by the 1963 Resolution of the General Assembly and

\textsuperscript{103} See further infra, § 16.4.
\textsuperscript{104} See further infra, § 19.3.
the 1967 Outer Space Treaty.\textsuperscript{106} There is less dispute, however, about the fact that the main developments of space law today happen in the field of ‘soft law’, that is in the proliferation of various non-binding rules, many of which show a tendency to develop into customary law.\textsuperscript{107} This process is exemplified by many contemporary examples, the best of which is certainly the slow ascendance of rules for space debris mitigation from an essentially non-legal agreement between major space agencies to a status of soft-law regulation blessed by a 2007 Resolution of the General Assembly.\textsuperscript{108}

Contrary to these developments some authors still continue to argue for a future of international space law beyond ‘soft law’. They see many convincing and concrete reasons for this, mainly in the fields of security and safety of space operations, which need a guarantee of long-term sustainability. They see hard law as much more appropriate and effective in these as well as many other cases in which juridical certainty, predictability and responsibility are needed.\textsuperscript{109} All this seems to suggest that the history of space law is far from being over and that it will proceed in further stages dominated not only by states and their international organizations, but also, and to an increasing degree, by non-state actors.

In the final analysis the emergence of new rules and regulations for outer space will still require the legitimacy and universality that only global organizations like the United Nations can provide. When introducing the initial Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space to the General Assembly of the United Nations in December of 1963, Manfred Lachs, one of the most important architects of space law, remarked that


\textsuperscript{107} For a discussion of ‘soft law’ in works of public international law scholars, see e.g. A. Boyle, Soft Law in International Law-Making, in \textit{International Law} (Ed. M.D. Evans) (2006); O. Schachter, The Twilight Existence of Non-Binding International Agreements, 71 \textit{American Journal of International Law} (1977); H. Hillgenberg, A Fresh Look at Soft Law, 10 \textit{European Journal of International Law} (1999), 499.

\textsuperscript{108} See F.G. von der Dunk, \textit{Contradictio in terminis} or \textit{Realpolitik}? A Qualified Plea for a Role of ‘Soft Law’ in the Context of Space Activities, in \textit{Soft Law in Outer Space} (Ed. I. Marboe) (2012), 54.

it ought to be made clear that principles as enumerated do not constitute a closed chapter. We have to welcome what was achieved and strive for further agreements. The law of outer space is in its formative stage only. We must proceed with prudence and care-take full benefit of agreements reached ... make them a living reality and continue with our efforts for further agreements.\footnote{M. Lachs, \textit{The Law of Outer Space: An Experience in Contemporary Law-making} (reissue 2010), 128.}

No less illuminating are his comments on the first space treaties when he said:

Looking at the body of law now existing, it could not be claimed that the rules adopted attained all the required objectives ... some of them demand further elaboration, while others are not free of imprecision or leave room for improvement. Some others constitute a bare scaffolding for the law of tomorrow, indications or merely inklings of the trend to be followed. This notwithstanding, the balance-sheet is impressive. Principles and rules, instruments of law have come into being which are universal in scope and character. They are clear and unequivocal on many issues.\footnote{\textit{Ibid.}, 130.}

These remarks and comments will certainly keep their validity as the course of space law continues into the twenty-first century.