Philippe Achilleas

MILITARY ACTIVITIES IN OUTER SPACE IN LIGHT OF THE OUTER SPACE TREATY

INTRODUCTION

The legal regime governing the military use of outer space is marked by a fundamental ambiguity. The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space Including the Moon and Other Celestial Bodies (hereinafter: Outer Space Treaty), signed on 27 January 1967, is often associated with the idea that outer space constitutes a non-militarised domain. This perception is not without foundation. The Treaty was negotiated within the United Nations Committee on the Peaceful Uses of Outer Space (UNCOPUOS). The very name of this body suggests that outer space activities should be limited to peaceful purposes and may give the impression that military uses are excluded. In addition, the preamble of the Outer Space Treaty emphasises the common interest of mankind and the need to preserve outer space for peaceful purposes.

This perception was reinforced by the background in which the Treaty was adopted. In the context of the Cold War and the fear of a nuclear conflict, the United Nations[1] and the media[2] placed its adoption under the banner of peace and disarmament. At the same time, during the first years of space exploration, the military dimension of space activities was largely kept confidential. Public discourse focused on scientific and technological progress and on the idea that space exploration would serve humanity. Even today, the military origins of space activities, such as the work of

1 See UNGA Res. 2222 XXI, which adopts the Outer Space Treaty and strongly emphasises the peaceful use of outer space.

2 Frankel 1967; Schwœbel 1967.

DOI: https://doi.org/10.36250/01374_01

Wernher von Braun on V2 missiles for Nazi Germany, remain a sensitive or marginal topic.[3]

It was only at the turn of the 1980s that the military use of outer space began to emerge as a subject of public debate. A decisive point was the Strategic Defense Initiative (SDI) presented by Ronald Reagan in a televised address on 23 March 1983. This project, also known as 'Star Wars', brought back to the forefront the question of deploying weapons in space and highlighted the strategic role of space technologies.

Today, the link between space and defence is evident. Recent conflicts, including the war in Ukraine and in the Middle East, show that outer space has become an essential component of military operations. Space systems ensure surveillance, communications and navigation. Without satellites, armed forces are blind, mute and immobile. At the same time, the current international context is marked by renewed rearmament, which is impacting the space sector. Outer space is not only highly militarised. It is also increasingly contested, with acts such as jamming, cyber operations and close-proximity manoeuvres in orbit. Several States, including the United States with the creation of the United States Space Force and France with the establishment of the Space Command *(Commandement de l'espace)* have developed dedicated military space structures. Similar developments can be observed in China, with the People's Liberation Army Aerospace Force, and in Russia, through the Russian Space Forces. While only a few States have created fully-fledged space forces, these initiatives reflect the growing integration of space into military strategies. Outer space is becoming a theatre of operations in its own right. The "Star Wars" scenario is no longer science fiction.

Against this background, the question arises: What does the Outer Space Treaty say about military activities in outer space? A first reading could suggest that the principle of peaceful use excludes any military action. This

[3] The recent publication of Irénée Régnauld and Arnaud Saint-Martin, *Une histoire de la conquête spatiale. Des fusées nazies aux astrocapitalistes du New Space* (Paris: La Fabrique, 2024), has drawn attention to the military origins of space activities. Its first chapter, on the "Nazi roots of astronautics", revisits a largely overlooked dimension and has created a certain unease within parts of the French space community.

is not the case. The Treaty is largely permissive about the militarisation and even the weaponisation of outer space. Only the Moon and other celestial bodies are subject to a strict regime of non-militarisation.

This situation can be explained by several factors. First, space technologies are inherently dual use. There is no fundamental difference between a launch vehicle and a ballistic missile, or between a civilian Earth observation satellite and a military surveillance satellite. Second, no State can play a major military role without access to space capabilities. Satellites are essential to ensure connectivity and data for armed forces. Third, military public procurement plays a key role in financing space programmes, through captive markets linked to national defence.

A careful reading of the Treaty shows that its drafters opted for a regime of partial demilitarisation, reflected in Article IV, which is the central provision on the militarisation and weaponisation of outer space. At the same time, even if the Treaty remains permissive, military space operations must comply with the other principles of the Treaty, which constrain the action of States.

THE LIMITED DEMILITARISATION REGIME UNDER ARTICLE IV OF THE OUTER SPACE TREATY

The principle of the peaceful use of outer space, as affirmed in the Preamble of the Outer Space Treaty, is given concrete expression in Article IV, which translates it into binding obligations. It thus formalises this fundamental principle, recognised by the United Nations from the very beginning of the space age. Indeed, the legal understanding of "peaceful purposes" in outer space did not emerge fully formed in the 1967 Outer Space Treaty but was progressively shaped through early resolutions of the United Nations General Assembly. In this respect, Resolution 1348 (XIII) of 13 December 1958, entitled "Question of the Peaceful Use of Outer Space", constitutes the very first United Nations resolution devoted to outer space. It refers to the use of outer space for "peaceful purposes only", suggesting, at least *prima facie,* an ambition to exclude any military activity. However, this formulation was significantly nuanced one year later in Resolution 1472

(XIV) of 12 December 1959, entitled "International Co-operation in the Peaceful Uses of Outer Space", which referred more broadly to the "peaceful use of outer space", thereby omitting the term "only". This subtle but decisive linguistic shift reflects an early accommodation of strategic realities.

By the late 1950s, outer space had already become an area of geopolitical significance. Both the United States and the Soviet Union had begun developing space-based capabilities with clear military implications, notably reconnaissance satellites. The American CORONA programme, initiated in 1959 with its first successful mission in 1960 (KeyHole series), and the Soviet Kosmos satellites, deployed from the early 1960s, illustrate the rapid integration of space technologies into national security strategies. In this context, a strict prohibition of military uses of outer space would have been politically untenable for the two superpowers.

The transition from "peaceful purposes only" to "peaceful purposes" thus marks a foundational compromise in the law of outer space. Rather than excluding military activities altogether, it opened the way for an interpretation of "peaceful" as "non-aggressive", allowing for the development of military uses short of the deployment of weapons of mass destruction. This interpretative evolution is reflected in Article IV of the Outer Space Treaty, which establishes a regime of partial, rather than comprehensive, demilitarisation in Earth orbits, while preserving a stricter regime of complete non-militarisation for celestial bodies.

THE PARTIAL DEMILITARISATION OF EARTH ORBITS

The legal regime governing military uses of Earth orbits derives primarily from Article IV (1) of the Outer Space Treaty. This provision does not establish a general prohibition on military activities in outer space. Instead, it lays down a specific and limited restriction, prohibiting only the placement in orbit around the Earth of nuclear weapons or any other kinds of weapons of mass destruction. This formulation reflects a compromise characteristic of the Cold War context. The objective was to prevent the extension of

nuclear confrontation into outer space, without excluding military uses of space as such. From a legal perspective, the notion of weapons of mass destruction is not explicitly defined in the treaty. However, it is generally understood, considering subsequent international practice to refer to nuclear, chemical and biological weapons, i.e. weapons capable of causing widespread, indiscriminate and large-scale destruction.

The regime of non-nuclearisation established by the Outer Space Treaty must be read in conjunction with other instruments of international law that reinforce, in a complementary manner, the exclusion of nuclear activities from the space environment. The Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water (PTBT), opened for signature on 5 August 1963,[4] constitutes the first major step in this direction. It prohibits nuclear test explosions in outer space well before the adoption of the Outer Space Treaty. This framework was subsequently reinforced by the Comprehensive Nuclear-Test-Ban Treaty (CTBT), opened for signature on 24 September 1996,[5] which extends the prohibition to all nuclear explosions, in any environment.

An *a contrario* reading of Article IV (1) clarifies the limits of the prohibition on the militarisation of Earth orbits. Article IV (1) does not prohibit the transit of weapons of mass destruction through outer space. Intercontinental ballistic missiles (ICBMs), whose trajectories pass through outer space, are not covered by the prohibition, insofar as they are neither placed in orbit. The distinction between deployment and transit is therefore central to the interpretation of the provision and has been consistently reflected in State practice.

Apart from the specific prohibition of weapons of mass destruction laid down in Article IV (1), international space law does not prohibit weaponisation nor military uses of outer space as such.

This permissive framework has been reflected, first, in the long-standing integration of outer space into missile defence doctrines. The SDI, launched in 1983 under the presidency of Ronald Reagan, envisaged the deployment of space-based systems capable of intercepting ballistic missiles. Although

4 Partial Nuclear Test Ban Treaty.

5 Comprehensive Nuclear-Test-Ban Treaty.

the programme was never fully realised, it marked a decisive moment in the conceptualisation of outer space as a potential theatre for strategic defence. Under the presidency of Barack Obama, missile defence policy was not abandoned but rather reconfigured by adapting the technological and geographical scope of the system. More recently, the administration of Donald Trump reaffirmed the strategic importance of space in this domain, notably through the presentation in 2025 of the Iron Dome for America[6] referred to in political discourse as a "Golden Dome", a concept reflecting renewed interest in integrated and potentially space-enabled missile defence architectures.

Secondly, the permissive nature of the legal regime is illustrated by the continued practice of anti-satellite (ASAT) testing, which remains, in principle, lawful under the Outer Space Treaty. The destruction of satellites by China in 2007, by the United States in 2008, by India in 2019 and by Russia in 2021 – each targeting their own satellites – demonstrates that States have retained the capacity to develop and test space-denial capabilities, despite the well-documented risks associated with the generation of orbital debris.

Most significantly, however, the militarisation of outer space today is manifested less through the deployment of weapons in orbit than through the systematic use of space-based infrastructures in support of military operations conducted on Earth. Recent conflicts, and in particular the war in Ukraine since 2022, provide a particularly illustrative example. Space-based assets have played a decisive role in intelligence, surveillance and reconnaissance, enabling near real-time monitoring of troop movements and military infrastructure through both governmental and commercial satellite imagery. They have also ensured resilient communications capabilities in contested environments, notably through the deployment of satellite internet services such as those provided by Starlink, which have supported the operational continuity of Ukrainian forces despite disruptions to terrestrial networks. In addition, satellite navigation systems, including the Global Positioning System, have been essential for operational coordination and the use of precision-guided munitions. More broadly, the integration of space-derived

6 Executive Order 14186 of 27 January 2025.

data into command-and-control structures has significantly enhanced situational awareness and decision-making capabilities on the battlefield.

THE EXCLUSIVE PEACEFUL USES OF THE CELESTIAL BODIES

Article IV (1) of the Outer Space Treaty does not limit its scope to the prohibition of placing nuclear weapons or other weapons of mass destruction in Earth orbit. It also expressly prohibits States from installing such weapons on celestial bodies or stationing them in outer space in any other manner.

However, it is primarily Article IV (2) that constitutes the central reference for the legal regime governing the use of celestial bodies for military purposes. By requiring that the Moon and other celestial bodies be used exclusively for peaceful purposes, and by prohibiting the establishment of military bases, installations and fortifications, as well as the testing of weapons and the conduct of military manoeuvres, this paragraph lays down a regime of complete demilitarisation for celestial bodies, in contrast to the partial demilitarisation applicable to Earth orbits under Article IV (1).

However, the notion of "peaceful purposes" is not construed in a strictly literal sense. The treaty adopts a functional interpretation of peacefulness, whereby the decisive criterion lies in the purpose of the activity rather than in the status of the actors or the origin of the means employed. Indeed, the provision clarifies that the use of military personnel for scientific research or for any other peaceful purpose is not prohibited, nor is the use of equipment or facilities necessary for peaceful exploration, even where such equipment is of a military nature.

The indirect legal framework governing military activities through general principles of Space Law

While its preamble refers to the peaceful use of outer space, the Outer Space Treaty does not revolve solely around military issues, but rather establishes

a comprehensive legal framework applicable to all space activities. Most of its core principles had, in fact, already been articulated in the 1963 Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space.[7]

While Article IV permits, to a large extent, the conduct of military space activities, by reserving a regime of complete demilitarisation for celestial bodies, these activities are embedded in a broader normative framework derived from other provisions of the Treaty. On the one hand, military uses of outer space benefit from a relatively liberal interpretation of the rules governing the legal status of outer space, in particular the principles of freedom of use and non-appropriation, which allow States to deploy and operate military assets in orbit. On the other hand, these same activities remain subject to a set of general obligations, in particular due regard, international responsibility, and liability that shape and constrain the manner in which military space operations may be conducted.

The legal status of outer space as a domain open to all uses, including military activities

The principle of the freedom of exploration and use of outer space, enshrined in Article I of the Outer Space Treaty, constitutes the cornerstone of the legal status of outer space. The provision establishes that outer space "shall be free for exploration and use by all States without discrimination of any kind, on a basis of equality and in accordance with international law".[8] Through this formulation, the treaty defines outer space as an open-access domain, in which no category of activity is excluded *per se,* subject to compliance with applicable legal norms.

This principle is of particular importance for the assessment of military activities in outer space. The text of Article I does not distinguish between civilian and military uses, nor does it restrict the purposes for which space may be utilised. In the absence of an explicit prohibition, save for the specific

7 UNGA Res. 1962 (XVIII).

8 Outer Space Treaty, Article I.

limitations relating to weapons of mass destruction under Article IV, military activities must therefore be regarded as in principle admissible under the freedom of use. This interpretation is consistent with the subsequent State practice, which has seen the progressive integration of space-based capabilities into national security strategies without any general claim of illegality.

However, the freedom of use is not formulated in absolute terms. Article I further provides that the exploration and use of outer space shall be carried out "for the benefit and in the interests of all countries", and that such exploration and use shall be the "province of all mankind". These formulations introduce a normative dimension that may appear, at first glance, to qualify or limit the exercise of the freedom of use. In particular, they raise the question whether activities primarily driven by national strategic interests, such as military uses, can be reconciled with the requirement to act in the interests of the international community as a whole.

Such a reading, however, is not supported by State practice. Since the entry into force of the treaty, the development of military space capabilities has proceeded without being considered incompatible with Article I. The absence of sustained protest or legal challenge indicates that the "benefit and interests of all countries" clause has not been understood as imposing a concrete or enforceable obligation capable of restricting specific categories of activities. Accordingly, it may be argued that, so long as such activities remain consistent with general international law, most notably the rules governing the use of force, they cannot be considered contrary to the "interests of all countries". The clause thus operates not as a direct legal constraint, but as a contextual standard, framing the exercise of freedoms within a broader requirement of compatibility with international peace and security.

Complementing the principle of freedom of use, Article II of the Outer Space Treaty establishes the rule of non-appropriation, according to which 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". This provision constitutes a foundational element of the legal status of outer space, as it excludes the extension of

territorial jurisdiction or control beyond the Earth. Read in conjunction with Article I, the non-appropriation principle contributes to defining outer space as a non-territorialised domain, characterised by openness and the absence of exclusive sovereign rights.

The implications of this principle are particularly significant for the assessment of military activities. Although Article II does not prohibit the deployment or operation of space systems for strategic or defence purposes, it prevents States from asserting exclusive rights over portions of outer space based on their activities. In this respect, the non-appropriation principle operates as a structural limitation on the spatial dimension of power projection. While States may develop and deploy capabilities that allow them to monitor, access, or influence specific areas from space, they cannot translate such capabilities into legal entitlements over the space environment itself. This distinction preserves the openness of outer space while accommodating the reality of strategic competition.

The constraints arising from general obligations

Outer space is open to all uses, including military activities. This does not mean that such activities are free from legal constraints. They are governed by a set of general obligations. These obligations do not prohibit military uses as such. They define how these activities must be conducted.

Article III of the Outer Space Treaty plays a central role. It requires that activities in outer space be carried out in accordance with international law, including the Charter of the United Nations. Outer space is therefore not a separate legal sphere. Military activities in space remain subject to the law on the use of force. In principle, a State may invoke the right of self-defence under Article 51 of the UN Charter. This may apply to attacks against space systems. However, the operational application of this right in outer space is uncertain. It is difficult to qualify an "armed attack" in this context. Attribution is often complex. Furthermore, any system is dual-use. It is not always possible to distinguish between civilian and military functions. In addition, defensive actions may create debris. These effects can extend

beyond the initial target. They may affect other States. For these reasons, Article III confirms the applicability of international law but does not provide clear operational guidance. Article III also raises the question of the application of international humanitarian law. In situations of armed conflict, this body of law applies in addition to the rules on the use of force. This includes the principles of distinction, proportionality and precautions in attack, which are to be applied to protect the civilian population and civilian objects. Their application to space activities is not straightforward. Dual-use satellites are a central issue. They may constitute legitimate military objectives if they make an effective contribution to military action. At the same time, their destruction may affect civilian services, such as communications or navigation. This creates a risk of indiscriminate effects. It also raises questions under the proportionality principle. The expected military advantage must be balanced against the potential harm to civilian uses. The applicability of general international law to outer space activities also encompasses restrictions relating to war propaganda. The Preamble of the Outer Space Treaty expressly refers to UN General Assembly Resolution 110 (II), which condemns "all forms of propaganda [...] designed or likely to provoke or encourage any threat to the peace, breach of the peace, or act of aggression",[9] and affirms its applicability to outer space. This reference reflects the historical context in which the Treaty was adopted. During the Cold War, international broadcasting was a particularly sensitive issue, especially as satellites became key vectors for global radio and television dissemination, and even more so with the emergence of direct broadcasting satellites in the 1970s.

Article IX introduces a more specific constraint. States must act with due regard to the interests of other States and avoid harmful interference. This obligation applies to all space activities, including military operations. It has direct operational implications. In practice, military space activities may create situations of proximity or interference. This is particularly visible with inspection or intelligence satellites operating close to other space objects. The case of the Russian satellite *Luch-Olymp,* which manoeuvred in close

[9] UNGA Res. 110 (II), para. 1.

proximity to the Franco–Italian satellite *Athena-Fidus* in 2017, illustrates this situation. These manoeuvres were publicly disclosed by the French Minister of the Armed Forces, Florence Parly, in a speech delivered on 7 September 2018.[10] Such behaviour may be justified on strategic or intelligence grounds. However, it raises questions under Article IX. Close approaches may pose a risk of interference or disruption. They may also be perceived as hostile. Article IX, therefore, introduces a standard of conduct. It does not prohibit such operations, but it requires States to consider their impact and, where appropriate, to engage in consultations. This requirement appears difficult to reconcile with intelligence or espionage missions, which, by nature, are discreet and do not lend themselves to prior consultation. The same reasoning applies to anti-satellite (ASAT) weapons, particularly those involving the destruction of space objects. Such weapons generate debris which may persist in orbit and affect other satellites. In this context, the use of systems capable of neutralising a satellite without destroying it, such as directed energy systems or electromagnetic interference techniques, including jamming, may appear more consistent with these obligations, as they limit the generation of debris and reduce the risk of long-term interference with other space activities.

This logic of prevention of harmful interference is reflected in the development of "safety zones", as set out in Principle 11 of the Artemis Accords on Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes (Artemis Accords), first signed on 13 October 2020.[11] These zones are explicitly presented as an application of Article IX. They aim to prevent harmful interference by ensuring a certain separation between activities. This development is not entirely without precedent. In the field of space telecommunications, and particularly in the management of the geostationary orbit under the framework of the International Telecommunication Union (ITU), operators are assigned specific orbital positions associated with defined frequency rights. In practice, this has led to the emergence of so-called "orbital slots" or "boxes",

[10] Le Monde 2018.

[11] Artemis Accords, Section 11.

within which satellites operate while maintaining a certain separation from neighbouring systems to avoid harmful interference. However, the extension of such mechanisms to military activities raises specific issues. A State could seek to establish a safety zone around sensitive military operations, to limit the proximity of other actors. While this may be justified under Article IX, it cannot lead to a form of appropriation by occupation prohibited under Article II of the Outer Space Treaty. Safety zones must therefore remain temporary, proportionate and non-exclusive in intent.

Article X introduces a form of transparency and confidence-building. It provides that States Parties shall consider, on a basis of equality, requests from other States to be given an opportunity to observe the flight of space objects.[12] The purpose is to promote openness and to reduce mistrust between States. However, this mechanism remains limited in scope. First, it is based on a request and consent logic. A State may ask to observe a space activity, but the State conducting the activity is only required to "consider" the request. There is no obligation to accept it. Second, the treaty specifies that such observation must be arranged "to the greatest extent feasible and practicable". This introduces a wide margin of discretion. States may invoke technical, operational or security reasons to refuse access. In addition, the practical implementation of this provision raises difficulties. Space activities, and in particular military operations, are often sensitive. They involve technologies and information that States are not willing to disclose. Observation of space objects in flight is also technically complex. It requires access to facilities, data or trajectories that are not easily shared. As a result, Article X does not establish a strong system of verification or control. It therefore has limited impact on military activities in outer space. This provision nevertheless reflects an important idea. The exploration and use of outer space should not be conducted in complete secrecy.

Articles VI and VII complete this framework. They establish State responsibility and liability. States are responsible for national activities in outer space. This includes military activities. They must authorise and supervise these activities when conducted by private operators. They are

[12] Outer Space Treaty, Article X.

also liable for damage caused by their space objects.[13] These rules do not prohibit military uses, but impose accountability. They encourage States to control risks, especially in situations involving debris or interference.

CONCLUSION

The permissive nature of the Outer Space Treaty has, over time, contributed to the transformation of outer space into a domain of growing strategic competition, if not conflict, obscuring its fundamental character as a shared and inherently fragile environment. Any deliberate explosion in orbital regions populated by thousands of satellites may trigger cascading effects with catastrophic and long-lasting consequences. Likewise, non-kinetic operations targeting communication or Earth observation satellites may have severe repercussions on the ground, affecting populations that have become deeply dependent on space-based services for essential, and sometimes vital, needs. In this respect, current developments appear increasingly distant from the humanistic principles that inspired the adoption of the Treaty.

At a time of renewed strategic repositioning in space, the trajectory is deeply concerning. Threats to space assets have never been more significant, while discussions within international fora, particularly within the Conference on Disarmament, remain stalled on the issue of arms limitations in outer space. Yet, there is an urgent need to act in order to realign space activities with the foundational objectives of the Treaty, as recalled in its Preamble: "Recognizing the common interest of all mankind in the progress of the exploration and use of outer space for peaceful purposes" and "[...] believing that the exploration and use of outer space should be carried on for the benefit of all peoples irrespective of the degree of their economic or scientific development."

[13] Outer Space Treaty, Articles VI, VII.

REFERENCES

Frankel, Max (1967): 62 Nations Sign Treaty to Curb Arms in Space. *The New York Times,* 28 January 1967. Online: https://www.nytimes.com/1967/01/28/archives/62-nations-sign-treaty-to-curb-arms-in-space-62-nations-sign-treaty.html

Régnauld, Irénée – Saint-Martin, Arnaud (2024): *Une histoire de la conquête spatiale. Des fusées nazies aux astrocapitalistes du New Space.* Paris: La Fabrique.

Le Monde (2018): La France accuse la Russie de tentative d'espionnage par satellite. *Le Monde,* 7 September 2018. Online: https://www.lemonde.fr/international/article/2018/09/07/paris-revele-une-tentative-d -espionnage-russe-sur-un-satellite-franco-italien-en-2017_5351908_3210.html?srsltid=AfmBOoq04PAPHzSMfVjosBo2DJqWZGp-ll4TzqUJCt9la5gIsm3KKSqJ

Schwœbel, Jean (1967): Une soixantaine de pays ont déjà signé le traité sur l'utilisation pacifique de l'espace. *Le Monde,* 30 January 1967. Online: https://www.lemonde.fr/archives/article/1967/01/30/une-soixantaine-de-pays-ont-deja-signe-le-traite-sur-l-utilisation-pacifique-de-l-espace_2608862_1819218.html?srsltid=AfmBOor6TAlXN2VjcploAJ_EruIUbLGYdVnhnZW_lQ8RqheTTXonduHK

United Nations General Assembly (1963): *Declaration of Legal Principles Governing the Activities of States in the Exploration and Use of Outer Space,* UNGA Res. 1962 (XVIII), UN Doc. A/Res/1962(XVIII), adopted 13 December 1963.

United Nations General Assembly (1947): *Measures to Be Taken against Propaganda and the Inciters of a New War,* UNGA Res. 110 (II), adopted 3 November 1947, UN Doc. A/Res/110 (II).

United States National Aeronautics and Space Administration (2020): *The Artemis Accords. Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets, and Asteroids for Peaceful Purposes,* signed 13 October 2020, Washington, D.C. Online: https://www.nasa.gov/artemis-accords/