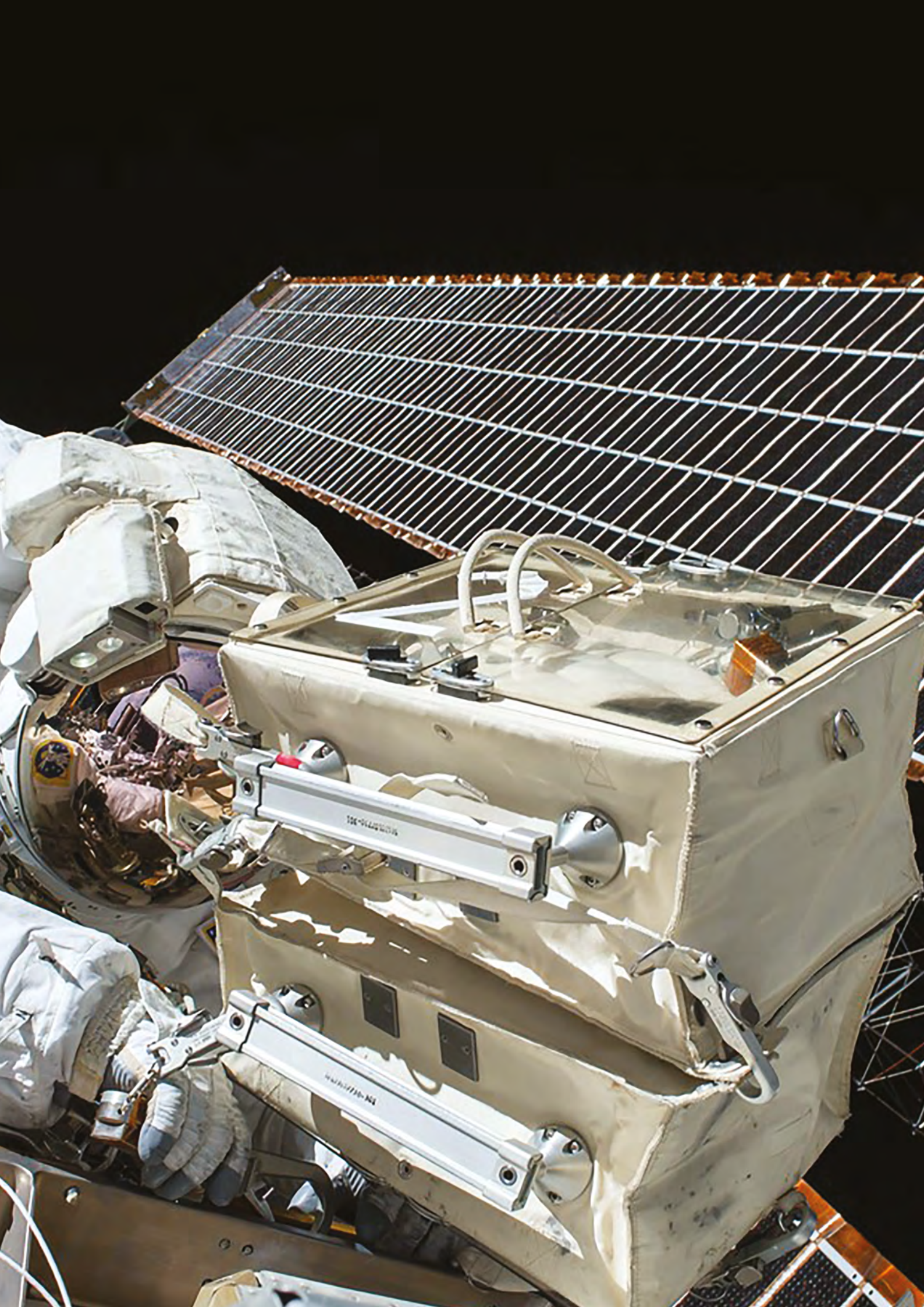


Artemis Accords: New law for the moon and outer space?

Summary of
Artemis Accords

Issues arising from
the Artemis Accords





Background

The USA aims to land the first woman and the next man on the moon by 2024 under its Artemis program. As part of the USA's Artemis program, NASA has released the Artemis Accords. These Accords aim to establish a common set of principles to govern the civil exploration and use of outer space in general, not only the moon.

The USA is a party to the 1967 Outer Space Treaty but not the "Agreement Governing the Activities of States on the Moon and Other Celestial Bodies" (the Moon Treaty). The Artemis Accords claim to be grounded in the Outer Space Treaty. In line with the existing legal space framework¹, they aim "to create a safe and transparent environment which facilitates exploration, science, and commercial activities for all of humanity to enjoy".

To this date, only few countries in the world have adopted laws and regulations around space enterprises and explorations. Luxembourg, in an aim to become the European hub for space related explorations by private undertakings, has adopted the Space Resources Act of 20 July 2017 ("Space Resources Act") which *inter alia* recognizes a right of ownership to space resources.

It remains to be seen how this quite recent field of national law will develop in the coming years.

¹ Such as The Convention on Registration of Objects Launched into Outer Space, Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space and Convention on International Liability for Damage Caused by Space Objects.

Summary of Artemis Accords

The Outer Space Treaty² (OST) contains the principles that govern the exploration and use of outer space, including the moon and other celestial bodies. While the Artemis Accords are clearly inspired by the OST's basic principles, they also introduce 'new' elements, like safety zones on the moon or interoperability, that take into account the evolution of space technology and of the space sector in general since the 1960s.

The Artemis Accords currently comprise of ten principles, which are summarised below.

Peaceful purposes

All activities will be conducted for peaceful purposes, per the tenets of the Outer Space Treaty

Transparency

Artemis Accords partner nations will be required to publicly describe their own policies and plans in a transparent manner.

Interoperability

Partner nations are to utilise open international standards, develop new standards when necessary, and strive to support interoperability to the greatest extent practicable.

Emergency assistance

NASA and the Artemis Accords partner nations reaffirm their commitments to the Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space. NASA and partner nations commit to taking all reasonable steps possible to render assistance to astronauts in distress.

Registration of space objects

The Artemis Accords reinforce the critical nature of registration and urge any non-member signatories of the Registration Convention to join.

Release of scientific data

Artemis Accords partner nations will agree to follow NASA's example, releasing their scientific data publicly to ensure that the entire world can benefit.

Protecting heritage

NASA and Artemis Accords partner nations will commit to the protection of sites and artefacts with historic value.

Space resources

space resource extraction and utilisation can and will be conducted under the auspices of the Outer Space Treaty, with specific emphasis on Articles II, VI, and XI.

Deconfliction of activities

NASA and Artemis Accords partner nations will provide public information regarding the location and general nature of operations to inform the scale and scope of 'Safety Zones', and there shall be notification and coordination regarding these safety zones.

Orbital debris and spacecraft disposal

NASA and Artemis Accords partner nations will agree to act in a manner that is consistent with the principles reflected in the Space Debris Mitigation Guidelines, including agreeing to plan for the mitigation of orbital debris.

² Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies.



International space agencies that join NASA in the Artemis program will do so by executing bilateral Artemis Accords agreements.

Effectively, the Artemis Accords reaffirm certain principles enshrined in the OST, among which are the use of outer space for peaceful purposes, transparency, the registration of space objects, the avoidance of harmful interference, as well as the non-appropriation and freedom of exploration principles. Since the Accords are somewhat vague principles at the moment, the final forms will be very important in determining the nature of the rights arising under the bilateral agreements

that will be developed. By drafting the Artemis Accords, it seems that the US intends to come up with its own custom-made legal framework for lunar exploration. Further, the bilateral nature of the intended bilateral agreements may be a signal that the US may seek to redefine aspects of space law that are vague or in dispute. We turn now to discuss some issues arising from the Accords.

Issues arising from the Artemis Accords

Private enterprise

SpaceX's successful launch of the Falcon Heavy, Falcon 9 and Dragon spacecraft has brought recent attention to interest in space by private enterprises. The OST requires that companies operating from signatory nations must comply with the OST as part of their host nation's participation in the treaty. But the Artemis Accords will be implemented through bilateral agreements at the National or space agency level rather than with private enterprises. Thus, they will not bind private enterprise unless they are implemented by local legislation or Governments (or space agencies) imposing compliance as part of government contracting requirements.

At a European level, Luxembourg legislation explicitly allows and financially incentivizes private enterprises to initiate space-related explorations, notably where space mining is concerned. The Space Resources Act aims at providing a legal framework for private undertakings. However, such undertakings are subject to a prior authorization specific to space-related operations. The Space Resources Act further limits the right to conduct private explorations in space to the following forms of Luxembourg or European companies:

- Public company limited by shares (*société anonyme*);
- Corporate partnership limited by shares (*société en commandite par actions*);
- Private limited liability company (*société à responsabilité limitée*); or
- European company (*société européenne*).

Peaceful purposes

Since 1979, the Moon Treaty has governed the activities of signatory States on the moon and other celestial bodies, and applies certain OST principles to the moon, including the use for peaceful purposes.

The most important principle of the OST is that of the "peaceful purposes", which is "at the core" of the Artemis Accords. In line with Article IV of the OST, all space activities must be conducted for peaceful purposes. Under the same Article, establishing military bases, installations and fortifications, as well as testing weapons and conducting military manoeuvres on the moon is prohibited. Given the recent creation by the US of its Space Force, it is welcome that the Accords emphasize peaceful purposes for all space activities.

Non-appropriation: Safety zones

Article II of the OST establishes another cardinal principle: the non-appropriation principle. Based on the non-appropriation principle, States are prohibited from appropriating the moon or other celestial bodies by claiming of sovereignty or by any other means. As part of the Artemis principle of *Deconfliction of Activities* NASA proposes 'Safety Zones'. These Safety Zones may also be somewhat contentious. What will they entail? Will they be akin to property rights? Their practical implementation is unclear but ultimately they would need to comply with Article II of the OST.

Space resources: Moon mining

The Accords recognise that the ability to use resources on the Moon, Mars and elsewhere may be critical to support space exploration or existence outside Earth. But use of resources can go far beyond simply use for existence or for scientific purposes.

In April 2020, the US President issued an executive order supporting moon mining and taking advantage of the natural resources of space. The use of resources found in space or celestial bodies is potentially important for both government and private space initiatives, such as private contractors as well as public – private partnerships.

The Luxembourg Space Resources Act specifically focuses on this type of initiatives. The idea behind “space mining” or “moon mining” can essentially be summarised as conducting asteroid or planet site exploitation and bringing materials such as hard rock minerals, valuable metals and, potentially, water back to Earth. Such materials could also be exploited directly “on site”, e.g., should bases for space exploration be set up on the moon. Through a recent dedicated website³, companies with headquarters in Luxembourg can apply for funding to start their space exploration. To start exploring activities from Luxembourg territory, a company must obtain a prior authorization from the relevant government secretary (ministre).

Property rights are a significant issue, as they can offer the incentives for private enterprise. The Space Resources Act provides a legal framework for commercial companies wishing to appropriate space resources. A certain lack of clarity however

persists around the extent of the right of ownership to the resources, as granted by the Space Resources Act. This point will need to be further specified by international cooperation treaties in the future.

Furthermore, there is a divide between those who interpret the OST to allow mining on the moon, and those who do not. Certain States, including the US, maintain that Article II of the OST clearly does not prohibit the use of space resources. The interpretation of Article II of the OST and the possibility of using space resources has been discussed at an international level within the Legal Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS). In accordance with the Artemis Accords, the use of space resources – use that is confirmed to include the extraction and utilisation of space resources – shall be conducted under the auspices of the OST, having specific regard to Articles II, VI (regarding the international responsibility of States for national activities in outer space) and XI (regarding the obligation to inform the Secretary-General of the United States as well as public and the scientific community).

Space mining activities are likely to exclude use by others of the mining site or an area within its Safety Zone. An analogy could be that of high seas oil exploration: no one owns the high seas but oil exploration and commercial fishing on the high seas is permitted. But to the extent there is an exclusion zone, will this conflict with the no-appropriation principle?

³<https://www.SpaceResources.lu>.



Registration of space objects

The Artemis Accords refer to the Registration Convention of 1975, based on which objects launched into outer space must be registered to identify the responsible State. Under the Artemis Accords, the registration of objects is mandatory and is regarded as vital to ensure safety and sustainability. In fact, the Artemis Accords call upon partners to become a party to the Registration Convention.

The Artemis Accords are professedly consistent with the principles of the Space Debris Mitigation Guidelines of the COPUOS. These Guidelines, first developed at COPUOS and then published in 2007 as UNGA Resolution 62/217, contain (not legally binding) provisions that aim at limiting space debris (including the disposal of spacecraft). The Artemis Accords will contribute to disseminating these guidelines, adapting them to the context of the moon.

In Luxembourg, the Space Resources Act currently does not require the registration of launched space objects and is thus currently not compliant with the

Registration Convention. Consequently, two draft bills No. 7270 and 7317 have been tabled to regulate specifically the responsibility for the disposal of space debris and for the registration of space objects.

Under this tabled legislative framework, the state of Luxembourg could be held liable for damages made by a space-related initiative acting under Luxembourg law (i.e., an initiative acting under prior authorization from the Luxembourg government).

Harmful interference

Article IX of the OST contains provisions prescribing the avoidance of harmful interference. Under the Artemis Accords, information about the location and nature of the operations will be provided to the public to avoid harmful interference and to ensure “deconfliction of activities”. The expression “deconfliction of activities” is quite a new concept in space law and its exact scope and contents will only become clearer after the bilateral agreements implementing the Artemis Accords have been drafted.



However, we note that the UN Convention on the Law of the Sea allows states to enforce safety zones around artificial islands or installations. Similarly, the Safety Zone concept could be a means of implementing the concept of avoiding harmful interference. Safety zones around sites or infrastructure could allow States to protect these places and promote their security and safety.

Emergencies

The Artemis Accords also purport to reaffirm the principles contained in the Astronaut Rescue and Return Agreement of 1968 concerning the rescue of astronauts, the return of astronauts and the return of objects launched in outer space. Emergency assistance will be provided to those in need.

Transparency and release of data

Other principles of the Artemis Accords seem to be in line with the principles enshrined in the Articles of the OST or with generally applied space law concepts, such as the release of scientific data and transparency. In fact, NASA has already been sharing scientific data.

But as noted above, Artemis Accords partner nations will be required to publicly describe their own policies and plans in a transparent manner. Transparency can have different shades of meaning to different countries. The transparency requirement might be a stumbling block to those nations not used to sharing their plans, information and data on so wide a scale.

Conclusion

In general, what we currently know about the Artemis Accords does not conflict at first sight with the principles of international space law, whether embodied in the OST or elsewhere. We will, however, need to wait and see how exactly the bilateral agreements implementing the Artemis Accords be drafted and implemented.

There is room for controversy especially regarding mining and extraction activities and the concept of Safety Zones. As already proven in (space) law, different interpretations of the same legal text are not uncommon. However, as the Accords are quite high level and do not include an overall framework for international cooperation or dispute resolution, it remains to be seen how possible differences will be managed.

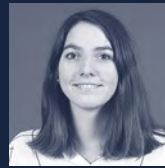
Therefore, although countries such as the United States, Australia or Luxembourg have more clearly defined the legal framework with regard to space exploration, there is an important need for international cooperation to answer outstanding questions in particular around ownership and international litigation.



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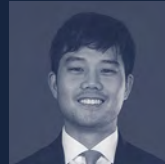
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