



COVERSHEET

Minister	Hon Stuart Nash	Portfolio	Economic and Regional Development
Title of Cabinet paper	Space Resource Utilisation and the Artemis Accords	Date to be published	30 June 2021

List of documents that have been proactively released

Date	Title	Author
May 2021	Space Resource Utilisation and the Artemis Accords	Office of the Minister of Economic and Regional Development Office of the Minister of Foreign Affairs
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Information redacted

YES

Any information redacted in this document is redacted in accordance with MBIE's policy on Proactive Release and is labelled with the reason for redaction. This may include information that would be redacted if this information was requested under Official Information Act 1982. Where this is the case, the reasons for withholding information are listed below. Where information has been withheld, no public interest has been identified that would outweigh the reasons for withholding it.

Some information has been withheld for the reasons of International Relations, Commercial Information and Legal Professional Privilege.

Office of the Minister of Foreign Affairs

Office of the Minister for Economic and Regional Development

Cabinet

Space resource utilisation and the Artemis Accords

Proposal

- 1 This paper seeks agreement to:
 - 1.1 a high-level New Zealand position on space resource utilisation; and
 - 1.2 New Zealand joining the Artemis Accords.

Executive Summary

- 2 Global interest in space resources utilisation (SRU) is increasing as technological development will soon render it economically viable. In response, New Zealand will need to take positions in international fora where rules, norms and standards on SRU are debated and in the context of domestic regulatory approval decisions. The United States' invitation to New Zealand in July 2020 to join the *Artemis Accords Principles for Cooperation in the Civil Exploration and Use of the Moon, Mars, Comets and Asteroids for Peaceful Purposes* (the Accords) has accelerated the timeline for our consideration of these issues.
- 3 New Zealand has a significant interest in SRU developments. SRU will enable missions deeper into the solar system and make space exploration cheaper and more accessible. New Zealand's space sector stands to benefit from the growth in the global space economy spurred by these developments. The benefits will accrue across the sector, from space manufacturing, operations (including launch services) to ancillary services such as ground stations.
- 4 New Zealand also has a critical interest in ensuring that SRU activity is conducted in sustainable way that avoids a scramble for resources by the largest players and the potential for conflict. We will also need to ensure our detailed positions on SRU are meaningfully consulted with the public and developed in partnership with Māori.
- 5 Existing international law, developed in the 1960s before SRU was contemplated, provides some basic level of regulation of SRU. However, unlike the approach taken to other "global commons" (like the high seas and the deep seabed), there is no dedicated international framework to regulate SRU activities and no existing rules designed to ensure the long term sustainability of this activity and the resources in space.
- 6 Taking into account New Zealand interests in respect of SRU, we recommend that New Zealand's high-level position on SRU be that:

- 6.1 The basic level of regulation provided by existing international law is not sufficient to properly regulate SRU;
- 6.2 Additional multilateral rules, norms or standards are needed in order to ensure the long-term sustainability of SRU, and to give effect to the existing international rules in the SRU context.
- 7 The United States is embarking on the largest space exploration programme since the Apollo moon landings in the 1960s and 70s. The Artemis Programme (the Programme) prioritises the development of SRU technologies as a critical enabler of next generation crewed, deep-space exploration missions to the Moon and Mars.
- 8 The Artemis Accords is the framework through which the United States seeks to conduct the Programme by laying the groundwork for internationally-agreed norms and standards on SRU and other activities. In practice, the Accords are the mechanism through which the United States will enable other states' involvement in – and through which other states will benefit from – this programme. SRU is a critical component addressed by the Accords.
- 9 We consider that involvement in the Artemis Accords has the potential to accrue significant, long-term economic benefit to New Zealand, as it is likely to reduce friction for New Zealand companies seeking to participate in the Artemis Programme.
International Relations
New Zealand was one of the original eight countries invited by the United States to join the Accords, because of our close relationship on space policy International Relations
- 10 While signing on to the Accords would not impose any obligations on New Zealand, it would be seen by some as a strategic alignment on space matters with the US and other members. It would also be a visible demonstration of New Zealand's interest in SRU and contribute to our international profile on the matter.

11 International Relations

Background

- 12 New Zealand's status as a space faring nation draws international recognition. This brings significant opportunities across many domains: economic, scientific, national security and in our international relations. The recent invitation from the United States to be among the first partners in its Artemis Programme through the Accords is an example of how we are now seen as a key player on space issues.

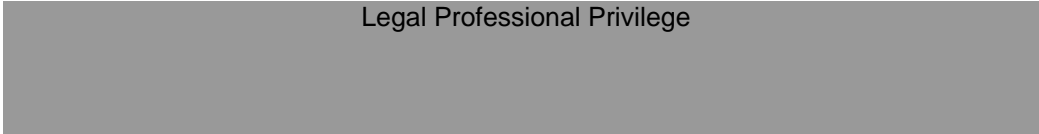
- 13 However, this status also demands New Zealand develop positions on complex emerging space issues – such as space resource utilisation (SRU) – in order to maximise the benefits from space, but also to ensure that rules, norms and standards on space activities develop in line with our broad interests. This presents a new policy challenge, as space is largely an unregulated global commons, subject to intense strategic competition.

Space resources

- 14 Space resources are those extractable or recoverable materials (i.e. rocks, ice and metals) contained in or on the Moon, asteroids and other celestial bodies. SRU is the extraction and use of these materials, either in space or for return to Earth.
- 15 Recent technological advances have made SRU feasible, which has increased states' interest in addressing it in national policy and regulation. While very early stage SRU has been conducted before (e.g. returning rocks from the Moon during the Apollo missions), we are likely to see significant progress in the scale and sophistication of SRU activities within the next ten years.
- 16 The use of space resources has the potential to transform humanity's ability to explore, understand and use the solar system. Accessing and using the resources found in space could well eliminate the need to bring those same resources (e.g. fuel, oxygen, water, construction material) up from Earth at considerable cost and constraint. This will, in turn, make providing services from space cheaper and more sustainable, enable ambitious long-duration crewed missions and facilitate the construction of scientific and commercial space infrastructure at a scale not previously possible.
- 17 Immediate activity will likely focus on the identification, recovery and processing of water ice, regolith (soil), minerals and metals on the Moon for use in supporting human habitation and further exploration efforts on and from the Moon. SRU activities for direct commercial exploitation (e.g. return of material for sale on Earth), or conducted on Mars or asteroids, are likely to be longer-term prospects.
- 18 Due to its novelty, there remain unresolved fundamental questions that will influence the development of space resources policy in the coming years:
- 18.1 The commercial viability of SRU and the pace at which SRU technology will develop.
- 18.2 The impacts that SRU may have on the space or Earth environments, including whether there may be any harmful long-term impacts.
- 18.3 The prevalence of space resources including whether or not it is possible to exhaust specific resources. At present, it is thought that some space resources will be abundant and accessible (e.g. regolith) while others may be scarce, or initially inaccessible. This means that there is likely to be competition for accessible areas where valuable resources are present.
- 19 In addition to these uncertainties, states disagree about whether and how SRU should occur. Existing international law was largely set in the 1960s, before SRU was

contemplated. As a result, there is no dedicated international framework to regulate SRU activities as there are for other similar “global commons” such as the high seas and the deep seabed.

- 20 While existing international law does not provide a specific regulatory regime for SRU, it does provide some general rules that apply to the conduct of all space activities. Pursuant to existing international law, SRU activities would be permissible if they:

20.1  Legal Professional Privilege

20.2 Avoided the “harmful contamination” of outer space and/or adverse changes to the Earth’s environment resulting from the activity.²

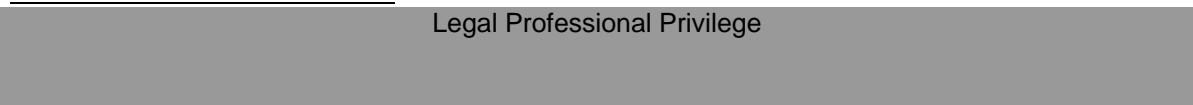
20.3 Avoided any “potentially harmful interference” with others space actors’ activities, including not impeding others’ access to the Moon and other bodies.³

The Artemis Accords

21 The Artemis Programme seeks to return humans to the Moon and enable long-term human presence in outer space, for instance through human exploration of Mars. To succeed, Artemis will require one of the world’s largest science and technology efforts, including the recovery and use of resources, such as water, found on the Moon.

22 The US has invited New Zealand to be a member of the Artemis Accords. The Accords are a policy framework for enabling the civil exploration activities encompassed by the Artemis Programme. The Accords take the form of a non-binding arrangement that sets out positions across ten policy areas, including SRU, relevant to this next phase of space exploration. The text of the Accords is attached at **Appendix A.**

23 New Zealand was invited alongside seven other countries to negotiate the draft text in mid-2020.⁴ The United States has stressed the invitation remains open and has encouraged New Zealand to undertake any due diligence it considers necessary.

 Legal Professional Privilege

² Outer Space Treaty, Article IX which states: “States Parties to the Treaty shall pursue studies of outer space, including the Moon and other celestial bodies, and conduct exploration of them *so as to avoid their harmful contamination and also adverse changes in the environment of the Earth resulting from the introduction of extra-terrestrial matter* and, where necessary, shall adopt appropriate measures for this purpose.

³ Outer Space Treaty, Article IX which states: “If a State Party to the Treaty has reason to believe that an activity or experiment planned by it or its nationals in outer space, including the Moon and other celestial bodies, would cause potentially harmful interference with activities of other States Parties in the peaceful exploration and use of outer space, including the Moon and other celestial bodies, it shall undertake appropriate international consultations before proceeding with any such activity or experiment.” Article 1 also states: “Outer space, including the Moon and other celestial bodies, 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, and there shall be free access to all areas of celestial bodies.”

⁴ Original signatories included: United States, United Kingdom, Australia, Canada, Italy, United Arab Emirates, Luxembourg, and Japan.

MBIE and MFAT have undertaken a policy development process covering the issues prompted by the Accords.

- 24 As the Accords are intended to encompass a wide range of space exploration activity, they include principles on a number of space policy issues, most of which are generally well-settled and where there are clear international standards and best practices. [REDACTED] International Relations [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

- 24.1 SRU is not inherently contrary to existing international law;
- 24.2 any SRU activities would need to comply with international law; and
- 24.3 there is a need for a multilateral process to progress SRU rules, norms and standards.

- 25 The Accords also propose a mechanism (referred to as “safety zones”) to reconcile the right of free access to the moon and other celestial bodies⁵, with the obligation that all installations on the moon and other celestial bodies must be open to other states.⁶

Analysis – Space resource utilisation

Range of New Zealand interests in SRU

Economic

- 26 SRU will enable the next generation of crewed, deep-space exploration and presents significant benefits to New Zealand by making space exploration cheaper and more accessible. Our ability to capture these benefits can be improved through proactive involvement in international policy development on SRU, the Artemis Programme and other related initiatives.
- 27 There is significant long-term benefit in the growth of the global space sector unlocked by space resources. The potential economic value from accessing space resources is difficult to estimate, however, a 2018 study commissioned by the Luxembourg Space Agency expects the SRU industry to generate revenue of up to €170 billion from 2018-2045.
- 28 Historically, large space programmes have also spurred the development of technologies that foster growth across the space value chain. These technologies will deepen scientific understanding, drive innovation and produce economic opportunity across the growing global space sector, including within firms that are, or may wish to locate in New Zealand. In 2018/19 New Zealand’s space sector was worth \$1.7 billion across a number of subsectors – including space manufacturing, operations (e.g. launch)

⁵ Outer Space Treaty, Article 1,

⁶ Outer Space Treaty, Article 12.

and ancillary services such as ground stations – all of which stand to benefit from the activity unlocked by SRU.

International rules-based order to ensure effective management of shared resources

- 29 Protecting and promoting an effective multilateral rules-based system for managing outer space issues, including SRU, is critical for New Zealand’s interests, not least the economic potential of this activity. Without an effective multilateral rules-based system, there is potential for a scramble for space resources by the largest players, conflict, the exhaustion of such resources, and degradation of the space environment. It is squarely in New Zealand’s interests to avoid this and the associated potential for strategic competition and rising tensions in space. Any efforts should also promote the depoliticisation of issues, and peaceful settlement of disputes.
- 30 The approach of the international community to managing resources in areas that are beyond national jurisdiction (sometimes referred to as the “global commons”) or otherwise subject to shared governance, has generally been to take a multilateral approach and explicitly regulate exploitation through a treaty regime setting up governance arrangements. These arrangements include requirements designed to ensure the conservation and management of the specific resource, for example, the UN Law of the Sea Convention and the Antarctic treaty system.⁷ More work needs to be done in order to determine the specific governance arrangements that should apply to SRU.
- 31 New Zealand is one of a range of actors with an interest in SRU and actively participates in international discussions on the governance of outer space. Our launch capability raises the stakes for New Zealand in the setting of international rules but it also enhances our status and influence. The broad international interest in SRU has ensured it remains an active agenda item at the Legal Sub-committee of the United Nations Conference on the Peaceful Uses of Outer Space (UN COPUOS).

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⁷ Which is not an area beyond national jurisdiction, as New Zealand and six other states have territorial claims to parts of the continent, but is subject to a collective management regime – the Antarctic Treaty System. New Zealand does not consider Antarctica as a “Global Commons”.

Bilateral Relationships

33 The issue of SRU also engages a number of New Zealand’s bilateral relationships. Bilateral space cooperation is an important and growing component of our overall US relationship. This cooperation has directly enabled the emergence of a launch sector in New Zealand and will be critical for its growth. International Relations

[Redacted]

Within this bilateral context, constructive engagement with the United States on SRU and in particular the Artemis Accords is in our interests.

34 Beyond the US, we will also need to manage bilateral relationships with the wide range of countries with active interests in outer space. International Relations

[Redacted]

Māori interests

35 A range of Māori interests and values are engaged by SRU and the Artemis Accords. Knowledge of outer space, known as tātai arorangi, is a fundamental aspect of mātauranga Māori. It features significantly in Māori indigenous knowledge and values, such as whakapapa, which provides that our genealogical origins are linked to the beginning of the Universe; kaitiakitanga, which requires guardianship of outer space and protection of its resources; and wairuatanga, which is focused on the spiritual connection between the Earth and the universe derived from Māori cosmology. There are also considerable benefits to the Māori economy from the growth of New Zealand’s space industry, including high-value jobs and better data tools for sustainable land and resource management.

Proposed New Zealand high-level position on space resources

36 While existing international law provides some high level rules which apply to SRU, it has some significant gaps, especially when compared to other regimes that regulate the exploitation of shared resources in areas beyond national jurisdiction.

37 Existing international law does not include any explicit requirements related to the conservation and long-term management of space resources, sustainability and the space environment. Legal Professional Privilege

[Redacted]

38 These gaps are potentially significant and they are not consistent with New Zealand’s interest in an effective rules-based system for shared resources (including our approach in similar regimes). For this reason, we recommend New Zealand’s high-level position on SRU be that:

- 38.1 The basic level of regulation provided by existing international law is not sufficient to regulate SRU in the long term.
- 38.2 Therefore, we will advocate for multilateral rules, norms or standards in order to ensure the long-term sustainability of SRU and to reinforce the peaceful use of outer space, and to effectively operationalise the existing international rules in the SRU context. This will include:
 - 38.2.1 Rules that go beyond the existing international obligation to avoid harmful contamination and which are focused on ensuring any harmful, long term impacts resulting from SRU are avoided or at least limited and there is a process to understand these impacts.
 - 38.2.2 Ensuring the sustainable management of space resources; we understand this is likely to be central to Māori interests in outer space.
 - 38.2.3 Ensuring that any SRU does not preclude the long-term use of space resources for others.
 - 38.2.4 Ensuring that existing international obligations are given effect in a way that ensures transparency and clarity – particularly concerning the interests of and benefits to small countries such as New Zealand.
 - 38.2.5 Ensuring certainty of rules for commercial operators, as uncertainty will inhibit investment and development.
- 39 Such an approach would allow New Zealand to continue to support and participate in the development of SRU activities, while at the same time advocating for the development of rules, norms or standards that would fill current policy gaps and work towards the long-term sustainability of SRU activities and outer space more generally.
- 40 We recognise that it might take a significant period of time to develop these new multilateral rules, norms or standards and that, in the interim, SRU activity would be governed by existing international law.

Analysis – Artemis Accords

Opportunities for New Zealand from membership in the Artemis Accords

41 [Redacted] International Relations [Redacted] Since 2016, New Zealand has built a close working relationship with the United States on space. This has led to us being part of the first group of countries to be approached to negotiate and join the Accords.

42 [Redacted] International Relations [Redacted]

[Redacted] International Relations [Redacted]

International Relations

43 The United States has signalled it will be moving ahead at pace with its space exploration activities, and New Zealand has a choice to make about the level of involvement and influence we want in that programme.

The Accords also offer New Zealand the chance to rebalance our relationships with partners around civil space exploration for the direct benefit of Earth

44 The Accords also offer New Zealand the chance to emphasise our relationship with the United States around civil space exploration. In this regard, the basis of New Zealand’s civilian space relationship with the United States is the enabling and regulation of an innovative, safe and secure New Zealand-based space launch industry.

International Relations

45 We consider that we should use Artemis and the Accords to emphasise the relationship with the United States towards civil space activities that encompass space exploration, climate change and environmental monitoring, technology development and training the next generation of scientists and engineers.

Commercial Information

46

47 This significant milestone, combined with signing the Accords, is an opportunity to grow civil space exploration missions as a part of the New Zealand-United States relationship.

International Relations

48 The Accords also engage our relationships, and provide a forum for cooperation, with other key international partners. Japan, for example, is a significant contributor to the Artemis Programme and one of the first signatories of the Accords. During the Prime Minister’s visit in 2019, New Zealand and Japan committed to closer cooperation on space issues. Given the prominence of Japan’s commitment to the Artemis Programme, our participation in the Accords can enable deeper policy and regulatory cooperation and linkages between our respective space sectors.

Setting New Zealand up to participate in a large and novel part of the global space sector

49

International Relations

International Relations

- 50 The European Space Agency (ESA), the Japan Aerospace Exploration Agency (JAXA), the Canadian Space Agency (CSA), the Australian Space Agency (ASA) and their supply chains, are all collaborating with NASA in Artemis and the US is looking for other partners.
- 51 We note that the ASA has made Artemis a central component of its strategy for growing the Australian space sector. With an investment of AU\$150 million over five years, planned initiatives will support Australian space firms deliver into overseas supply chains, demonstrate the sector’s ability to build space capability and heritage, and contribute flagship capabilities to Artemis Moon and Mars missions.
- 52 Participation in the Artemis Programme is likely to lead to longstanding sector partnerships with agencies and suppliers resulting in spillovers for the space sector and wider economy.
- 53 The Artemis programme will also lead to a step change in scientific research and endeavour across a range of domains. With NASA and many other member space agencies holding pure research and development and even manufacturing and mission function, being an active partner in Artemis will unlock access to unique (and well-funded) science, project collaboration opportunities and support.

International Relations

54

The Accords are non-binding and allow independent space policy positions

- 55 There is nothing at international law that would preclude New Zealand joining the Accords. The Accords are non-binding, and signatories have acknowledged their comfort that members will have different views. For instance, when Canada signed the Accords, its announcement noted the benefits of being a signatory to the Accords, but stressed its ongoing commitment to its international obligations and intention to work through existing international mechanisms. Canada stressed that “more work is needed to further solidify the framework for deep-space exploration activities, both nationally and internationally”.
- 56 With clear multilateral and bilateral messaging on New Zealand’s position on SRU, joining the Accords could be consistent with New Zealand taking the position on SRU proposed in this paper, and developing that position further in the future.
- 57 It will be important to ensure that our messaging safeguards New Zealand’s ability to take a policy position on the implementation of the Accords that may not align with partners, [redacted] A communication plan will be implemented that appropriately situates New Zealand’s membership in the Accords within this wider context and will mitigate the risk that

New Zealand is perceived as uncritically endorsing the positions of other signatories on SRU.

Membership of the Artemis Accords

58 The Accords currently include nine members, with Ukraine being the latest signatory and Brazil having signed a statement of intent to sign the Accords. The United States has indicated that it is actively looking to broaden the geographical representation of the group, [REDACTED] International Relations [REDACTED]

59 [REDACTED] International Relations [REDACTED]

60 Given the benefits outlined above, and should Cabinet agree with the SRU policy proposed in this paper, we recommend that Cabinet also agree to New Zealand’s membership in the Artemis Accords.

Implementation

61 If Cabinet agrees New Zealand should sign the Artemis Accords, officials would work with the United States on the communication of this decision and coordinate appropriate modalities for signing.

62 New Zealand will take its high level position on SRU into its international engagement on space policy issues. This will include bilateral and multilateral engagement on specific rule and norm development for SRU, for example, with other signatories of the Accords and within the UN Committee on the Peaceful Uses of Outer Space.

63 Consultation with relevant stakeholders, including Māori, will occur alongside regular engagement on broader space policy to enable more detailed policy positions to be developed. This consultation is ongoing and there are likely to be further opportunities prior to the end of 2021. Officials will report back to Ministers on the outcomes of the consultation.

Financial Implications

64 This paper has no financial implications.

Legislative Implications

65 This paper has no legislative implications

Impact Analysis

Regulatory Impact Statement

- 66 A Regulatory Impact Statement is not required because this proposal has no or only minor impacts on businesses, individuals, and not-for-profit entities.

Climate Implications of Policy Assessment

- 67 A Climate Implications of Policy Assessment (CIPA) is not required

Human Rights

- 68 This paper has no inconsistencies with the New Zealand Bill of Rights Act 1990 nor the Human Rights Act 1993.

Consultation

- 69 This paper has been prepared jointly by the Minister of Foreign Affairs and the Minister for Economic and Regional Development. The Ministry of Defence, New Zealand Defence Force, and the Department of the Prime Minister and Cabinet (National Security Group) have been consulted on this paper.

Communications

- 70 A communications plan will be implemented to situate New Zealand's membership in the Artemis Accords within the broader context of our high level position on SRU and approach to space issues more broadly.

Proactive Release

- 71 We intend to release the paper, withholding sections consistent with the Official Information Act 1982, within 30 business days of decisions being confirmed by Cabinet.

Recommendations

The Minister of Foreign Affairs and the Minister for Regional and Economic Development recommend that Cabinet:

- 1 **Note** that the United States has invited New Zealand to join the “Artemis Accords”, a non-binding arrangement intended to provide an international basis for space exploration activities, including space resource utilisation (SRU).
- 2 **Note** that consideration of whether New Zealand should join the Accords has accelerated New Zealand’s development of a high-level policy position on SRU – in particular whether international law is sufficient to effectively regulate such activities.

New Zealand policy on SRU

- 3 **Note** that SRU will enable the next generation of crewed, deep-space exploration and presents significant benefits to New Zealand.
- 4 **Note** that New Zealand has a key interest in ensuring an effective rules-based system is developed to manage SRU activities.
- 5 **Note** that while existing international law provides some general rules that would apply to SRU, it has some potentially significant gaps.
- 6 **Agree** the following elements of New Zealand’s policy position on SRU:
 - 6.1 The basic level of regulation provided by existing international law is not sufficient to regulate SRU in the long term.
 - 6.2 Therefore, we will advocate for multilateral rules, norms or standards in order to ensure the long-term sustainability of SRU, reinforce the peaceful use of outer space and effectively operationalise the existing international rules in the SRU context. This will include:
 - 6.2.1 Rules that go beyond the existing international obligation to avoid harmful contamination of outer space and which are focused on ensuring any harmful, long-term impacts resulting from SRU are avoided or limited and there is a process to understand these impacts.
 - 6.2.2 Ensuring the sustainable management of space resources.
 - 6.2.3 Ensuring SRU does not preclude the long-term use of space resources for others.
 - 6.2.4 Ensuring existing international obligations are given effect in a way that ensures transparency and clarity – particularly concerning the interests of and benefits to small countries such as New Zealand.
 - 6.2.5 Ensuring certainty of rules for commercial operators, as uncertainty will inhibit investment and development.

RESTRICTED

- 7 **Note** that this approach allows New Zealand to continue to support and participate in the development of SRU activities, while at the same time advocating for the further development of appropriate rules, norms or standards.
- 8 **Agree** that the above approach underpin New Zealand's engagement in multilateral and bilateral processes related to SRU.

Artemis Accords

- 9 **Note** that New Zealand membership in the Artemis Accords presents significant long-term economic, scientific and relational benefits, as well supports our ability to influence key space policy discussions.
- 10 **Note** that the Accords are non-binding, that there is nothing at international law that would preclude New Zealand joining the Accords, that with appropriate messaging joining the Accords could be consistent with the high level position on SRU proposed above, and that signatories have acknowledged their comfort that members will have different views on issues raised by the Accords.
- 11 **Agree** that New Zealand join the Artemis Accords.
- 12 **Agree** that New Zealand's membership in the Artemis Accords will be accompanied by messaging that situates our participation within our wider position on SRU and our approach to space policy issues more generally.

Authorised for lodgement

Hon Nanaia Mahuta
Minister of Foreign Affairs

Hon Stuart Nash
Minister for Economic and Regional
Development

THE ARTEMIS ACCORDS

PRINCIPLES FOR COOPERATION IN THE CIVIL EXPLORATION AND

USE OF THE MOON, MARS, COMETS, AND ASTEROIDS

FOR PEACEFUL PURPOSES

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The Signatories to these Accords;

RECOGNIZING their mutual interest in the exploration and use of outer space for peaceful purposes, and **UNDERSCORING** the continuing importance of existing bilateral space cooperation agreements;

NOTING the benefit for all humankind to be gained from cooperating in the peaceful use of outer space;

USHERING in a new era of exploration, more than 50 years after the historic Apollo 11 Moon landing and more than 20 years after the establishment of a continuous human presence aboard the International Space Station;

SHARING a common spirit and the ambition that the next steps of humanity's journey in space inspire current and future generations to explore the Moon, Mars, and beyond;

BUILDING upon the legacy of the Apollo program, which benefited all of humankind, the Artemis program will land the first woman and next man on the surface of the Moon and establish, together with international and commercial partners, the sustainable human exploration of the solar system;

CONSIDERING the necessity of greater coordination and cooperation between and among established and emerging actors in space;

RECOGNIZING the global benefits of space exploration and commerce;

ACKNOWLEDGING a collective interest in preserving outer space heritage;

AFFIRMING the importance of compliance with the *Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies*, opened for signature on January 27, 1967 ("Outer Space Treaty") as well as the *Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Objects Launched into Outer Space*, opened for signature on April 22, 1968 ("Rescue and Return Agreement"), the *Convention on International Liability for Damage Caused by Space Objects*, opened for signature on March 29, 1972 ("Liability Convention"), and the *Convention on Registration of Objects Launched into Outer Space*, opened for signature on January 14, 1975 ("Registration Convention"); as well as the benefits of coordination via multilateral forums, such as the United Nations Committee on the Peaceful Uses of Outer Space ("COPUOS"), to further efforts toward a global consensus on critical issues regarding space exploration and use; and

DESIRING to implement the provisions of the Outer Space Treaty and other relevant international instruments and thereby establish a political understanding regarding mutually beneficial practices for the future exploration and use of outer space, with a focus on activities conducted in support of the Artemis Program;

COMMIT to the following principles:

SECTION 1 - PURPOSE AND SCOPE

The purpose of these Accords is to establish a common vision via a practical set of principles, guidelines, and best practices to enhance the governance of the civil exploration and use of outer space with the intention of advancing the Artemis Program. Adherence to a practical set of principles, guidelines, and best practices in carrying out activities in outer space is intended to increase the safety of operations, reduce uncertainty, and promote the sustainable and beneficial use of space for all humankind. The Accords represent a political commitment to the principles described herein, many of which provide for operational implementation of important obligations contained in the Outer Space Treaty and other instruments.

The principles set out in these Accords are intended to apply to civil space activities conducted by the civil space agencies of each Signatory. These activities may take place on the Moon, Mars, comets, and asteroids, including their surfaces and subsurfaces, as well as in orbit of the Moon or Mars, in the Lagrangian points for the Earth-Moon system, and in transit between these celestial bodies and locations. The Signatories intend to implement the principles set out in these Accords through their own activities by taking, as appropriate, measures such as mission planning and contractual mechanisms with entities acting on their behalf.

SECTION 2 - IMPLEMENTATION

1. Cooperative activities regarding the exploration and use of outer space may be implemented through appropriate instruments, such as Memoranda of Understanding, Implementing Arrangements under existing Government-to-Government Agreements, Agency-to-Agency arrangements, or other instruments. These instruments should reference these Accords and include appropriate provisions for implementing the principles contained in these Accords.
 - (a) In the instruments described in this Section, the Signatories or their subordinate agencies should describe the nature, scope, and objectives of the civil cooperative activity;
 - (b) The Signatories' bilateral instruments referred to above are expected to contain other provisions necessary to conduct such cooperation, including those related to liability, intellectual property, and the transfer of goods and technical data;
 - (c) All cooperative activities should be carried out in accordance with the legal obligations applicable to each Signatory; and
 - (d) Each Signatory commits to taking appropriate steps to ensure that entities acting on its behalf comply with the principles of these Accords.

SECTION 3 – PEACEFUL PURPOSES

The Signatories affirm that cooperative activities under these Accords should be exclusively for peaceful purposes and in accordance with relevant international law.

SECTION 4 – TRANSPARENCY

The Signatories are committed to transparency in the broad dissemination of information regarding their national space policies and space exploration plans in accordance with their national rules and regulations.

The Signatories plan to share scientific information resulting from their activities pursuant to these Accords with the public and the international scientific community on a good-faith basis, and consistent with Article XI of the Outer Space Treaty.

SECTION 5 – INTEROPERABILITY

The Signatories recognize that the development of interoperable and common exploration infrastructure and standards, including but not limited to fuel storage and delivery systems, landing structures, communications systems, and power systems, will enhance space-based exploration, scientific discovery, and commercial utilization. The Signatories commit to use reasonable efforts to utilize current interoperability standards for space-based infrastructure, to establish such standards when current standards do not exist or are inadequate, and to follow such standards.

SECTION 6 – EMERGENCY ASSISTANCE

The Signatories commit to taking all reasonable efforts to render necessary assistance to personnel in outer space who are in distress, and acknowledge their obligations under the Rescue and Return Agreement.

SECTION 7 – REGISTRATION OF SPACE OBJECTS

For cooperative activities under these Accords, the Signatories commit to determine which of them should register any relevant space object in accordance with the Registration Convention. For activities involving a non-Party to the Registration Convention, the Signatories intend to cooperate to consult with that non-Party to determine the appropriate means of registration.

SECTION 8 – RELEASE OF SCIENTIFIC DATA

1. The Signatories retain the right to communicate and release information to the public regarding their own activities. The Signatories intend to coordinate with each other in advance regarding the public release of information that relates to the other Signatories' activities under these Accords in order to provide appropriate protection for any proprietary and/or export-controlled information.
2. The Signatories are committed to the open sharing of scientific data. The Signatories plan to make the scientific results obtained from cooperative activities under these Accords available to the public and the international scientific community, as appropriate, in a timely manner.
3. The commitment to openly share scientific data is not intended to apply to private sector operations unless such operations are being conducted on behalf of a Signatory to the Accords.

SECTION 9 – PRESERVING OUTER SPACE HERITAGE

1. The Signatories intend to preserve outer space heritage, which they consider to comprise historically significant human or robotic landing sites, artifacts, spacecraft, and other evidence of activity on celestial bodies in accordance with mutually developed standards and practices.
2. The Signatories intend to use their experience under the Accords to contribute to multilateral efforts to further develop international practices and rules applicable to preserving outer space heritage.

SECTION 10 – SPACE RESOURCES

1. The Signatories note that the utilization of space resources can benefit humankind by providing critical support for safe and sustainable operations.
2. The Signatories emphasize that the extraction and utilization of space resources, including any recovery from the surface or subsurface of the Moon, Mars, comets, or asteroids, should be executed in a manner that complies with the Outer Space Treaty and in support of safe and sustainable space activities. The Signatories affirm that the extraction of space resources does not inherently constitute national appropriation under Article II of the Outer Space Treaty, and that contracts and other legal instruments relating to space resources should be consistent with that Treaty.
3. The Signatories commit to informing the Secretary-General of the United Nations as well as the public and the international scientific community of their space resource extraction activities in accordance with the Outer Space Treaty.

4. The Signatories intend to use their experience under the Accords to contribute to multilateral efforts to further develop international practices and rules applicable to the extraction and utilization of space resources, including through ongoing efforts at the COPUOS.

SECTION 11 – DECONFLICTION OF SPACE ACTIVITIES

1. The Signatories acknowledge and reaffirm their commitment to the Outer Space Treaty, including those provisions relating to due regard and harmful interference.
2. The Signatories affirm that the exploration and use of outer space should be conducted with due consideration to the United Nations Guidelines for the Long-term Sustainability of Outer Space Activities adopted by the COPUOS in 2019, with appropriate changes to reflect the nature of operations beyond low-Earth orbit.
3. Consistent with Article IX of the Outer Space Treaty, a Signatory authorizing an activity under these Accords commits to respect the principle of due regard. A Signatory to these Accords with reason to believe that it may suffer, or has suffered, harmful interference, may request consultations with a Signatory or any other Party to the Outer Space Treaty authorizing the activity.
4. The Signatories commit to seek to refrain from any intentional actions that may create harmful interference with each other's use of outer space in their activities under these Accords.
5. The Signatories commit to provide each other with necessary information regarding the location and nature of space-based activities under these Accords if a Signatory has reason to believe that the other Signatories' activities may result in harmful interference with or pose a safety hazard to its space-based activities.
6. The Signatories intend to use their experience under the Accords to contribute to multilateral efforts to further develop international practices, criteria, and rules applicable to the definition and determination of safety zones and harmful interference.
7. In order to implement their obligations under the Outer Space Treaty, the Signatories intend to provide notification of their activities and commit to coordinating with any relevant actor to avoid harmful interference. The area wherein this notification and coordination will be implemented to avoid harmful interference is referred to as a 'safety zone'. A safety zone should be the area in which nominal operations of a relevant activity or an anomalous event could reasonably cause harmful interference. The Signatories intend to observe the following principles related to safety zones:
 - (a) The size and scope of the safety zone, as well as the notice and coordination, should reflect the nature of the operations being conducted and the environment that such operations are conducted in;
 - (b) The size and scope of the safety zone should be determined in a reasonable manner

- leveraging commonly accepted scientific and engineering principles;
- (c) The nature and existence of safety zones is expected to change over time reflecting the status of the relevant operation. If the nature of an operation changes, the operating Signatory should alter the size and scope of the corresponding safety zone as appropriate. Safety zones will ultimately be temporary, ending when the relevant operation ceases; and
 - (d) The Signatories should promptly notify each other as well as the Secretary-General of the United Nations of the establishment, alteration, or end of any safety zone, consistent with Article XI of the Outer Space Treaty.
8. The Signatory maintaining a safety zone commits, upon request, to provide any Signatory with the basis for the area in accordance with the national rules and regulations applicable to each Signatory.
 9. The Signatory establishing, maintaining, or ending a safety zone should do so in a manner that protects public and private personnel, equipment, and operations from harmful interference. The Signatories should, as appropriate, make relevant information regarding such safety zones, including the extent and general nature of operations taking place within them, available to the public as soon as practicable and feasible, while taking into account appropriate protections for proprietary and export-controlled information.
 10. The Signatories commit to respect reasonable safety zones to avoid harmful interference with operations under these Accords, including by providing prior notification to and coordinating with each other before conducting operations in a safety zone established pursuant to these Accords.
 11. The Signatories commit to use safety zones, which will be expected to change, evolve, or end based on the status of the specific activity, in a manner that encourages scientific discovery and technology demonstration, as well as the safe and efficient extraction and utilization of space resources in support of sustainable space exploration and other operations. The Signatories commit to respect the principle of free access to all areas of celestial bodies and all other provisions of the Outer Space Treaty in their use of safety zones. The Signatories further commit to adjust their usage of safety zones over time based on mutual experiences and consultations with each other and the international community.

SECTION 12 - ORBITAL DEBRIS

1. The Signatories commit to plan for the mitigation of orbital debris, including the safe, timely, and efficient passivation and disposal of spacecraft at the end of their missions, when appropriate, as part of their mission planning process. In the case of cooperative missions, such plans should explicitly include which Signatory has the primary responsibility for the end-of-mission planning and implementation.
2. The Signatories commit to limit, to the extent practicable, the generation of new, long-lived harmful debris released through normal operations, break-up in operational or post-mission

phases, and accidents and conjunctions, by taking appropriate measures such as the selection of safe flight profiles and operational configurations as well as post-mission disposal of space structures.

SECTION 13 – FINAL PROVISIONS

1. Building on any consultative mechanisms in preexisting arrangements as appropriate, the Signatories commit to periodically consult to review the implementation of the principles in these Accords, and to exchange views on potential areas of future cooperation.
2. The Government of the United States of America will maintain the original text of these Accords and transmit to the Secretary-General of the United Nations a copy of these Accords, which is not eligible for registration under Article 102 of the Charter of the United Nations, with a view to its circulation to all the members of the Organization as an official document of the United Nations.
3. After October 13, 2020, any State seeking to become a Signatory to these Accords may submit its signature to the Government of the United States for addition to this text.

Adopted on October 13, 2020, in the English language.

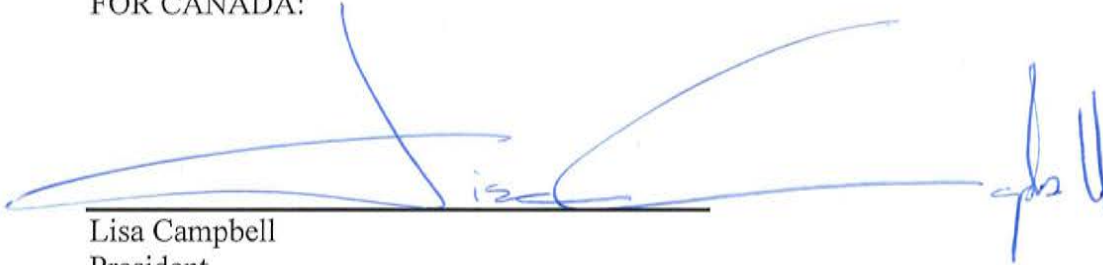
FOR AUSTRALIA



Dr Megan Clark AC
Head, Australian Space Agency

Date: 13 October 2020

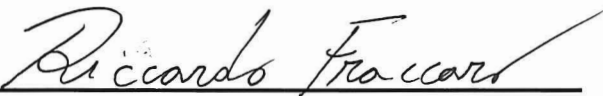
FOR CANADA:

A large, stylized handwritten signature in blue ink, consisting of several sweeping loops and a vertical stroke on the right side.

Lisa Campbell
President
Canadian Space Agency

Date: 13.10.20

FOR REPUBLIC OF ITALY:



Riccardo Fraccaro

On. Riccardo Fraccaro
Undersecretary of State at the Presidency
of the Council of Ministers

Date: 13 OTT. 2020

FOR JAPAN:

井上 信治

INOUE Shinji
Minister of State for Space Policy

Date: 2020/10/13

FOR JAPAN:

萩生田 光一

HAGIUDA Koichi
Minister of Education, Culture, Sports,
Science and Technology

Date: 2020/10/13

FOR THE GRAND DUCHY OF
LUXEMBOURG



Franz Fayot
Minister of the Economy

Date: October 13, 2020

FOR THE UNITED ARAB EMIRATES:

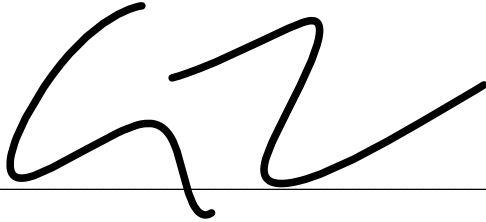


Her Excellency Sarah bint Yousef Al Amiri
Minister of State for Advanced Technologies
Chairwoman of UAE Space Agency

Date: 13.10.2020

SIGNED

FOR THE UK SPACE AGENCY
ON BEHALF OF THE GOVERNMENT OF THE
UNITED KINGDOM:

A handwritten signature in black ink, consisting of several fluid, connected strokes, positioned above a horizontal line.

Dr Graham Turnock
Chief Executive

Place: 71st International Astronautical Congress

Date: 13th October 2020_____

FOR THE UNITED STATES OF AMERICA:

A handwritten signature in black ink that reads "Jim Bridenstine". The signature is written in a cursive style with a large initial "J".

James F. Bridenstine
Administrator
National Aeronautics and Space Administration

Date: 10/13/20_____