



COVERSHEET

Minister	Hon Phil Twyford	Portfolio	Economic Development
Minister	Hon Megan Woods	Portfolio	Research, Science and Innovation
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List of documents that have been proactively released

Date	Title	Author
March 2020	Proposal to negotiate a treaty-level Framework Agreement with the United States on space to advance New Zealand's cooperation with NASA	Office of the Minister of Economic Development
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Information redacted

YES

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Some information has been withheld for the reasons of International Relations.

Office of the Minister for Economic Development and Office of the Minister of Research, Science and Innovation
Chair, Cabinet Economic Development Committee

Proposal to negotiate a treaty-level Framework Agreement with the United States on space to advance New Zealand's cooperation with NASA

Proposal

1. This paper seeks an approval for a Cabinet mandate for the Ministry of Business, Innovation & Employment (MBIE) to negotiate a treaty-level Framework Agreement on space cooperation with the United States, with the National Aeronautics and Space Administration (NASA) as the responsible agency.
2. A treaty-level Framework Agreement, which is preferred by the United States, is proposed because:
 - it removes the need to negotiate and sign one-off agreements for specific missions and research projects (many of which may be small scale)
 - it enables NASA to enter into more collaborative missions and research and industry partnerships with New Zealand companies and institutions and provides the ability to fund these activities
 - it provides NASA with certainty on GST and customs duty exemptions for activities in New Zealand.

Background

International relations

3. The United States government spends more on space than any other nation and has deep expertise in all sub-sectors of the space economy. We work closely with several United States government agencies with regard to space. In conjunction with the Federal Aviation Administration, we co-regulate Rocket Lab's New Zealand launch operations. We also recognise payload licences issued by the Federal Communications Commission and National Oceanographic and Atmospheric Administration as meeting regulatory requirements for payloads launched from New Zealand. We discuss space policy issues with the United States and other likeminded nations in international fora.
4. New Zealand currently cooperates with NASA across multiple domains including our science system, our space industry, and government space ecosystem. This cooperation is helping New Zealand build capability in, and grow, the New Zealand space sector, undertake cutting-edge scientific research and technology development and establish ourselves as a credible international partner for space activities.
5. In 2018, MBIE signed the Space Act Agreement with NASA to participate in the NASA International Internship Programme. The New Zealand Space Scholarship was launched in August 2018 to provide financial assistance to successful applicants under the Internship Programme. Seven students participated in two 2019 intakes at the NASA Ames Research Centre. Further to this, a New Zealand applicant, who was studying in the United States at the time, was accepted into the NASA Jet Propulsion Laboratory (JPL) domestic internship programme at JPL's expense.

6. A further seven New Zealand interns will be selected for the August 2020 Ames intake. MBIE is also in negotiations with JPL about trialling a dedicated New Zealand spot in their internship programme.

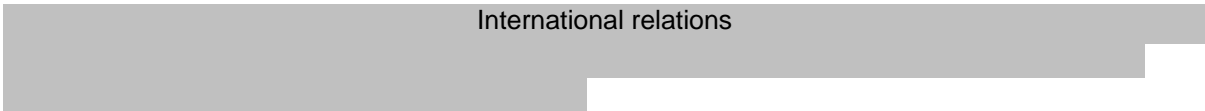
New Zealand supports the NASA-led SOFIA mission to fly from Christchurch every winter

7. The Stratospheric Observatory for Infrared Astronomy (SOFIA) is a NASA-led mission, in collaboration with the German Aerospace Center, which visits New Zealand during winter to observe the Southern Hemisphere skies. SOFIA is a highly modified Boeing 747SP aircraft with a 2.7 metre reflecting telescope that studies the composition of planetary atmospheres, comets, the formation of stars, and more.
8. The aircraft and crew are based in Christchurch and their activities are valuable to the local community. Aside from the prestige of hosting this significant scientific mission, the Christchurch City Council estimates that the 120 crew members contribute around \$5m to the local economy during their seven week stay.
9. In addition to their primary science mission, in 2019 the SOFIA crew also supported eight space and science teachers to fly on SOFIA to get hands-on scientific experience and to increase their knowledge of astronomy. They also host an open day each year with over 3000 people touring the plane and meeting with crew and researchers, significantly increasing the visibility of these activities in the local community.

New Zealand collaborates with NASA across the science system

10. NIWA undertakes calibration and validation for NASA's OCO-2 (Orbiting Carbon Observatory) greenhouse gas remote sensing satellite mission. Xerra, New Zealand's Earth Observation institute, has entered into an agreement to provide calibration and validation for JPL's ECOSTRESS mission in exchange for mission data collected over New Zealand on plant temperatures (an indicator of water stress).
11. NASA and MBIE recently entered into a project-based scientific cooperation arrangement for the Cyclone Global Navigation Satellite System (CYGNSS) mission. This mission involves Air New Zealand carrying NASA's next generation Global Navigation Satellite System (GNSS) receivers on board domestic flights. The GNSS receivers will calibrate and validate positioning data from a constellation of eight small satellites.
12. Cooperation on the CYGNSS mission allows for several New Zealand researchers to be involved in scientific projects on cyclones and hurricanes, as well as first-of-a-kind research on soil moisture, wetland and coastal dynamics and the long-term impacts of climate change. It will also complement our collaboration with the Environmental Defense Fund in the MethaneSAT mission.

A Framework Agreement with the United States will provide NASA with certainty regarding their missions in New Zealand

13. SOFIA has been flying scientific missions from Christchurch for several years. The New Zealand Customs Service (Customs) has used discretionary powers under the Customs and Excise Act to allow the SOFIA team to import valuable equipment on a temporary basis since 2013, including the Boeing 747SP. Temporary admission of goods is a widely used international Customs procedure.
14.  International relations
15. Formalising GST and customs duty exemptions will provide NASA with certainty regarding its missions in New Zealand. MBIE and Customs previously received approval from Ministers to negotiate a GST and customs duty exemption arrangement with NASA.

16. Since receiving this approval, NASA has indicated that they would like to negotiate a broader treaty-level Framework Agreement between the United States government and the New Zealand government to enable increased cooperation across the space ecosystem and to provide NASA certainty for their ongoing SOFIA missions. This Framework Agreement would cover cooperation on areas such as space science, Earth observation, aeronautics, space operations and missions.

A Framework Agreement with the United States Government would provide a clear basis for ongoing exemptions

17. New Zealand legislation allows for an ongoing exemption for customs duty and GST. Customs will work with MBIE and NASA to determine the most appropriate legislative power to accomplish this during negotiation. Providing this certainty to the United States will reinforce New Zealand's interest in supporting the acquisition of new scientific knowledge, including through facilitating the work of visiting scientific missions from other countries or international organisations.
18. It is highly likely that there will be other NASA-led missions which will undertake scientific activities in New Zealand in future. The Framework Agreement would also provide a mechanism for NASA to formally commit to reciprocal obligations such as the ultimate re-export of equipment and goods brought into New Zealand under the exemptions granted. We therefore propose that this arrangement enable the granting of exemptions to those missions by way of a schedule that the signatories can revise as required. This would be in line with good international practice.

New Zealand stands to gain from a Framework Agreement with the United States

New Zealand can leverage its unique advantages to take part in NASA missions

19. A core part of New Zealand's \$26 million investment in the recently announcement MethaneSAT space mission is funding for the construction and operation of a New Zealand-based mission control centre. This mission control centre will form a new component of our space ecosystem and enable us to participate in future space missions, including missions with NASA.
20. Our future-focused and flexible regulatory environment combined with our geographical location advantages of clear skies, clear seas, great locations for ground station infrastructure to communicate with satellites and an ideal environment for Earth observation data calibration and validation make us an attractive location for space activities.
21. New Zealand scientists, researchers, and companies have niche expertise in areas such as space technology miniaturisation, space technology manufacturing, big data processing, clean propulsion, sensor networks, and responsive small rocket launch.
22. NASA has stated that a Framework Agreement will help facilitate New Zealand's participation in more NASA-led research, missions, and technology development programmes. The Framework Agreement facilitates increased cooperation by reducing the requirement for multiple one-off agreements for missions and research projects, by allowing NASA to fund activities in New Zealand and involving New Zealand researchers, and by providing NASA with certainty on GST and customs duty exemptions.

A Framework Agreement can be leveraged to increase New Zealand's cooperation with NASA on research, science, and innovation across the space ecosystem

23. The Framework Agreement will be based on previous agreements on space that the United States has entered into with other countries. Its key objective will be to provide opportunities for New Zealand and NASA to collaborate on projects in space research and technology that are at the frontiers of innovation and research.

There is potential to cooperate with the United States on their Artemis space programme

24. The United States is currently increasing its commitment to space and is focused on the Artemis programme, with the leading goal of returning humans to the Moon by 2024 and enabling longer-term human exploration of Mars. Artemis will become the world's largest space programme, requiring USD\$20-30 billion in funding. NASA is running Artemis differently from past missions, such as the Apollo missions, utilising greater private sector capability to solve complex challenges. There will also be greater involvement of international partners in Europe, Japan, and Canada, and their local supply chains. On February 15, Rocket Lab announced that they have signed a contract to launch a lunar CubeSat for NASA to demonstrate the stability of the lunar orbit required for the lunar gateway project.
25. NASA technology and in particular the Artemis programme involves a huge amount of early stage research and development (R&D). NASA has stated that they would welcome collaboration with New Zealand on Artemis. On February 15, Rocket Lab announced that they have signed a contract to launch a lunar CubeSat for NASA to demonstrate the stability of the lunar orbit required for the lunar gateway project.
26. A Framework Agreement with NASA could open up further opportunities for New Zealand to collaborate on elements of the Artemis programme which would in turn open up our space sector to international business opportunities that were previously not available.

A Framework Agreement with the United States can support several government priorities

27. We propose that a Framework Agreement on space cooperation with the United States could be used to support several government priorities for building a productive, sustainable, and inclusive economy, including:
- implementing the proposed direction of the draft Space Strategy
 - raising economy-wide R&D to two per cent of GDP by 2027
 - implementing the Aerospace Industry Transformation Plan under the Industry Strategy "From the Knowledge Wave to the Digital Age"
 - implementing the draft Research, Science and Innovation Strategy.
28. We propose that you agree that MBIE negotiate the proposed Framework Agreement with the United States with NASA as their responsible agency. This will increase New Zealand's involvement with NASA and strengthen our important relationship with the United States. It will also create avenues for research in other areas of sovereign importance such as climate change research, disaster response, maritime domain awareness, and Earth sciences.

Consultation

29. The following government agencies have been consulted: The Ministry of Foreign Affairs and Trade and The New Zealand Customs Service.

Financial Implications

30. This paper does not have direct financial implications. Funding for any collaborative activities under the Framework Agreement would be sought through the annual Budget process or they may be funded by NASA.

Human Rights

31. The proposals in this paper are consistent with the New Zealand Bill of Rights Act 1990 and the Human Rights Act 1993.

Legislative Implications

32. This paper does not have legislative implications.

Regulatory Impact Analysis

33. The regulatory impact analysis requirements do not apply to this paper as it has no or only minor impacts on businesses, individuals, or not for profit entities.

Publicity

34. No publicity is planned for the negotiation of the Framework Agreement.

Proactive Release

35. We intend to proactively release this paper subject to redaction as appropriate.

Recommendations

36. The Minister for Economic Development and the Minister of Research, Science and Innovation recommend that the Committee:

- 36.1.  International relations
- 36.2. **Note** that a Framework Agreement would open up new opportunities for cooperation on space science, Earth observation, aeronautics, space operations and missions.
- 36.3. **Note** that a Framework Agreement would provide certainty to NASA with regards to GST and customs duty exemptions for NASA missions in New Zealand.
- 36.4. **Agree** that MBIE negotiate a Framework Agreement on space cooperation between the New Zealand government and the United States government with NASA.
- 36.5. **Note** that officials will provide further advice to the Minister of Foreign Affairs regarding whether or not the Framework Agreement is a major bilateral treaty of particular significance which is subject to Parliamentary Treaty Examination.
- 36.6. **Note** that officials will seek Cabinet approval of the text, signature, and entry into force of the Framework Agreement once a final text has been negotiated and agreed.

Authorised for lodgement

Authorised for lodgement

Hon Phil Tywford
Minister for Economic Development

Hon Dr Megan Woods
Minister of Research, Science and Innovation