



October 28, 2022

Submitted electronically to spacepolicyreview@mbie.govt.nz
Space Policy Review
Ministry of Business, Innovation and Employment
PO Box 1473
Wellington 6140

Re: New Zealand Space Policy Review Consultation

Dear Ministry of Business, Innovation and Employment (MBIE):

Planet Labs PBC (Planet) submits the attached response to the *New Zealand Space Policy Review Consultation (Consultation)*. Planet is a U.S.-based aerospace and data analytics company that owns and operates the largest fleet of Earth observation satellites with a mission to image the whole world every day, making change visible, accessible, and actionable. Uses of Planet's data include mapping, agriculture, and environmental change detection, among others. Planet applauds the focus of the *New Zealand Space Policy Review* on sustainable space activities and the use of new aerospace-enabled data to enhance understanding and preservation of New Zealand's natural environment.

Planet appreciates the opportunity to provide feedback on the *New Zealand Space Policy Review Consultation* and supports the Government of New Zealand's forward-thinking approach to sustainability in space and on Earth. We look forward to continued discussion on these important issues.

Respectfully Submitted,

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Planet Labs PBC



Submission to New Zealand Space Policy Review Consultation

Submitter information

About you

Name:

privacy of natural persons

Email address:

privacy of natural persons

Are you making this submission on behalf of a business or organisation?

Yes

No

If yes, please tell us the title of your company/organisation.

Planet Labs PBC

Would you like to be kept informed of the outcome of the Space Policy Review?

Yes

No

Are you happy for MBIE to contact you if we have questions about your submission?

Yes

No

Release of information

- Please tick this box if you do not wish your name and contact details above to be included in any information about submissions that MBIE may publish.
- Please tick this box if there is other information within your submission that you want to be kept confidential. If you have ticked this box, please state your reasons and grounds under the Official Information Act 1982 below, for consideration by MBIE.



Section 3: New Zealand's space policy objectives

The New Zealand government supports a range of interests in space (economic, environmental, international, national security and regulatory) by pursuing the following key policy objectives:

- Growing an innovative and inclusive space sector
- Modelling sustainable space and Earth environments
- Promoting the responsible uses of space internationally
- Protecting and advancing our national security and economic interests
- Regulating to ensure space activities are safe and secure

Question 4. Are any of these key policy objectives of particular importance to you?

- **Modelling sustainable space and Earth environments**

Planet supports the many efforts underway in New Zealand and internationally toward ensuring safe and responsible operations in space and takes seriously its own responsibility as a satellite operator. Planet has safely operated over 200 satellites with its current design, and safely disposed of almost 150 satellites, over the past decade. As the *Consultation* recognizes, governments can play an important role in promoting sustainable use of outer space. Planet respectfully suggests four areas of top priority for government-sponsored initiatives:

- ***Better modeling for the LEO atmospheric environment.*** Positional uncertainty remains a thorny problem for satellites operating in LEO. The margin of error for measuring the distance between two objects at risk of collision using existing models of the LEO environment can sometimes be as high as several kilometers when predicted even 24 hours in advance. Space operators need better atmospheric models and space situational data to reduce those positional uncertainties, weed out “false positive” conjunction alerts, and minimize the maneuver distances required in the event of potential collisions. The New Zealand government can promote further R&D in this area and encourage industry efforts to validate and standardize models and define best practices for their use.
- ***Better data sharing among space operators.*** Governments can also help to promote space sustainability and reduce collisions by encouraging private operators to share best accuracy orbit ephemerides with other operators. Planet performs orbit determination on its own satellites from GPS and 2-way UHF ranging and provides this data publicly in various formats. Transparent sharing of orbit ephemeride data with other operators would reduce uncertainty around active-on-active conjunctions. In addition, operators should also regularly communicate details of planned maneuvers, especially those initiated in response to conjunction alerts.



- **Better ground-based tracking assets.** Planet values the work of LeoLabs and the New Zealand Ministry of Business, Innovation and Employment on radar tracking of small satellites and space debris. Research and development into improved ground-based tracking assets can provide more data with higher accuracy. The tracking and characterization of orbital debris is a public good; accurate information in this area, when widely disseminated, allows space operators to better avoid collisions and minimize the creation of additional debris. As with any public good, government coordination and funding are needed to support technology improvements and widespread dissemination of information. Planet encourages New Zealand to continue to prioritize cooperative research and funding for improvements in public and private ground-based orbital debris tracking assets.
- **Active debris removal (ADR).** Planet agrees that public-private partnerships can help to push important ADR activities forward to reduce orbital debris. In addition to collaboration on and funding for ADR demonstrations, New Zealand can create a favorable legal and regulatory environment (including a reasonable liability framework) and provide economic incentives to incent industry participation. Given the right framework and appropriate incentives, industry-led ADR solutions will emerge.

- **Protecting and advancing our national security and economic interests**

Planet applauds New Zealand's recognition that new aerospace-based data can help to enhance productivity and economic value. In particular, efforts to strengthen the earth observation sector will pay dividends in improved understanding in the areas of climate and conservation. Planet was founded on the idea that daily earth observation data can help businesses, governments, researchers, and journalists see change on Earth and take action. Planet's satellite imagery is being made widely available today as part of Norway's International Climate and Forests Initiative to support efforts to stop deforestation and protect the world's tropical forests.¹ Planet's imagery is also used by the California Forest Observatory to dynamically map forest structure and vegetation fuel loads at individual tree level, which can help identify and address wildfire risk.² As the *Consultation* recognizes, climate-monitoring satellite missions can very accurately detect global methane emissions. In addition to the MethaneSAT mission mentioned in the *Consultation*, Planet is working with Carbon Mapper, the State of California, NASA's Jet Propulsion Laboratory, the University of Arizona, Arizona State University, the High Tide Foundation and RMI on launching a hyperspectral satellite constellation with the ability to pinpoint, quantify, and track

¹ O'Shea, Tara, *Universal Access to Satellite Monitoring Paves the Way to Protect the World's Tropical Forests*, Planet (Mar. 2, 2021), <https://www.planet.com/pulse/universal-access-to-satellite-monitoring-paves-the-way-to-protect-the-worlds-tropical-forests>.

² Good, Paris, *California Forest Observatory Sets New Standard for Mapping Forests And Wildfire*, Planet (Sept. 14, 2020), <https://www.planet.com/pulse/cfo-mapping-new-standard-wildfire>.



point-source methane and CO2 emissions.³ The data collected by the Carbon Mapper satellites will provide more complete, precise, and timely measurement of point source methane and CO2 source level emissions as well as 25+ other environmental indicators, enabling high emitting methane and CO2 sources publicly visible at the facility level. Planet encourages the Government of New Zealand to continue to support and collaborate with industry on use of earth observation data to promote environmental understanding and protection.

³ *Planet Announces New Details of Hyperspectral Offering*, Planet Labs PBC (Sept. 19, 2022), <https://www.planet.com/pulse/planet-announces-new-details-of-hyperspectral-offering>.