



NEW ZEALAND
SPACE AGENCY

New Zealand Space Agency: Case study – continuing supervision of national space activities

NEW SPACE NEW ZEALAND

Te Manatū Tuarangi o Aotearoa



MINISTRY OF BUSINESS,
INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

New Zealand Government

In 2017, New Zealand became a launching state

- + Fully-commercial launcher, Rocket Lab
- + New Zealand enacted the Outer Space and High-altitude Activities Act 2017
 - + A licencing regime for space activities from New Zealand or by New Zealanders overseas
 - + Gives effect to our international obligations
 - + Four categories of authorisation:
 - Launch Licence
 - Facility Licence
 - Payload Permit
 - High-altitude Licence
 - + Permits and licenses granted for certain parameters: e.g. altitude, mission and purpose, and other conditions as required.





Photo credit: Rocket Lab



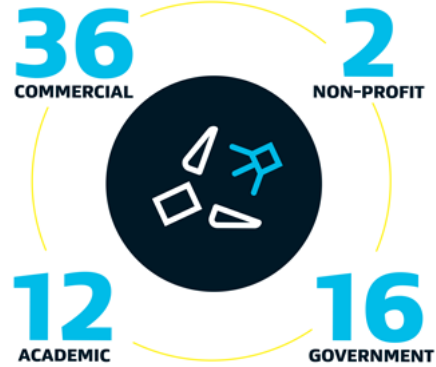
Since 2017, 97 satellites have launched from New Zealand

NUMBER OF PAYLOAD PERMITS APPROVED

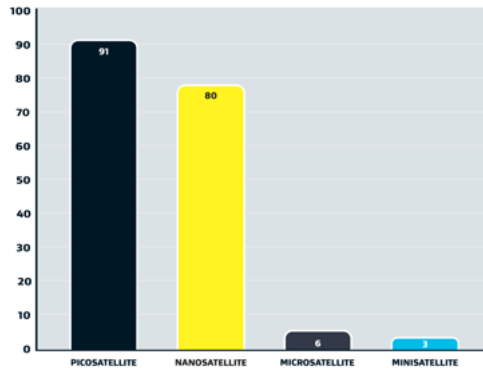


*Note that some payload permits are for more than one payload.

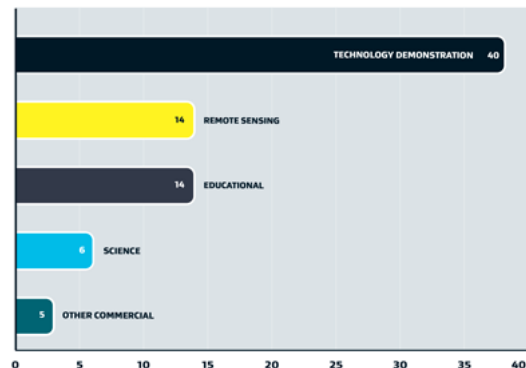
PAYLOAD OWNERS BY TYPE OF ORGANISATION



SATELLITE NUMBERS AND SIZES



PAYLOAD PURPOSES



In that context, we looked for a tool to monitor satellites launched from New Zealand

- + We wanted to verify that they are being operated safely and in accordance with the conditions of their permit.
- + Relevant LTS Guideline: **A.3 Supervise national space activities**
- + New Zealand partnered with LeoLabs; a US-based provider of commercial radar tracking services for objects in Low Earth Orbit.
- + Using a pilot to demonstrate the technology, LeoLabs created the Space Regulatory and Sustainability Platform to track objects launched from New Zealand, in real time.



How does this Platform help us implement the LTS Guidelines?

+ A.3 Supervise national space activities

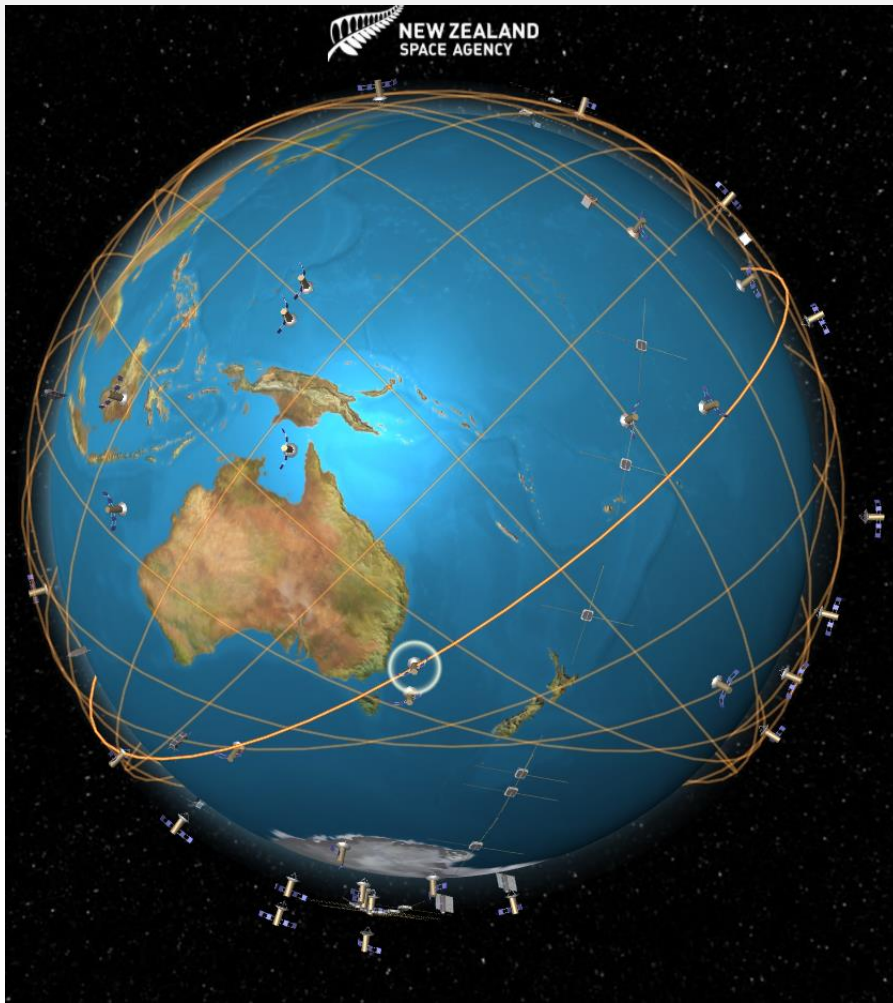
- + continuing supervision
 - + ongoing compliance with relevant national and international regulatory frameworks, requirements, policies and processes
- + A first of its kind among space agencies, this platform enables the New Zealand Space Agency to:
- + **track and monitor** each New Zealand launched object, in real time, using the LeoLabs radar network
 - + **set regulatory limits** for specific objects and receive automated alerts when an object is outside of any prescribed parameters
 - + **record object behaviour over time**, and build a picture of New Zealand's "catalogue", both historical and current.



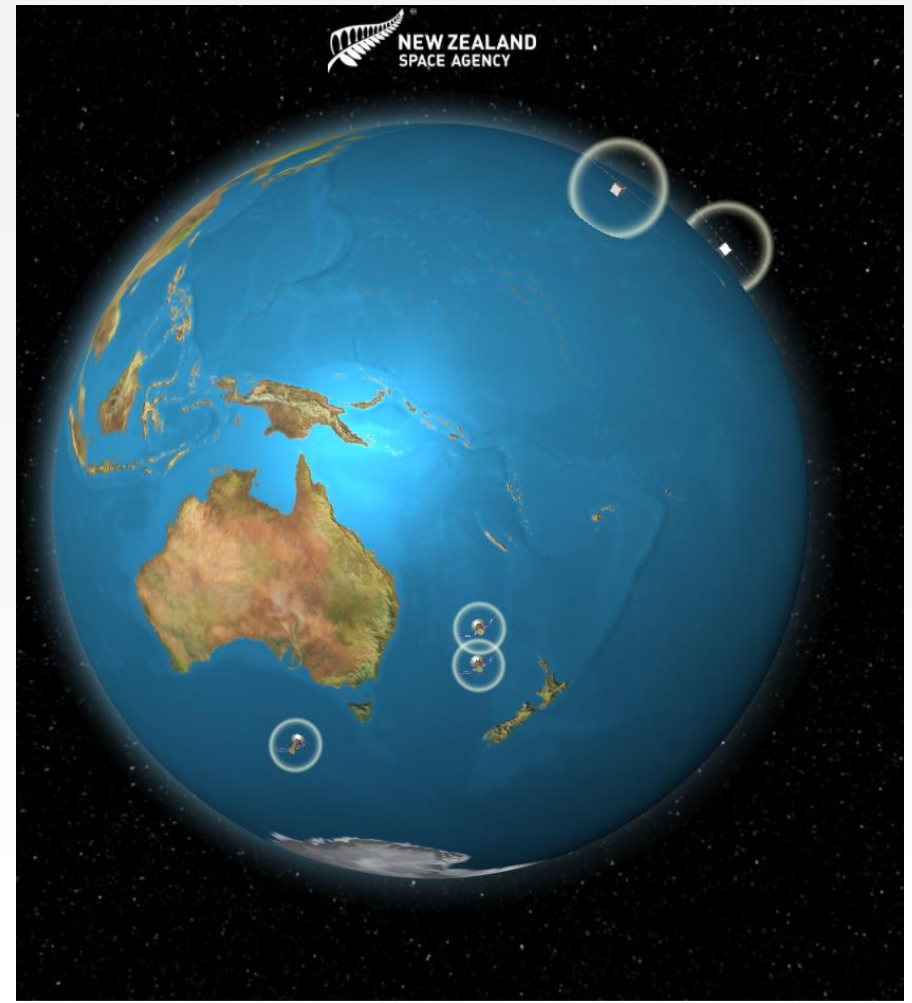


LeoLab's Central Otago radar can track objects as small as 2cm. Photo credit: LeoLabs





View of all satellites launched from New Zealand



View of satellites launched from one launch



Lessons learned and where to next?

+ Our three key lessons from this partnership:

- + **Partnering with industry offers opportunities to find innovative solutions to sustainability issues.** The Platform demonstrates the contribution that the space industry can make towards space sustainability.
- + **Pilot projects are an effective tool to demonstrate new technologies and practices.** As the pace of technology development accelerates, governments and space agencies need to adapt and be open to innovation.
- + **Tools like these can form the building blocks of space traffic management.** As orbits become more congested, more sophisticated coordination will be needed between satellite operators, and between space agencies.

