

Moon to Mars Trailblazer Initiative: EPE & Lunar Outpost Oceania Consortium

Space Resources Roundtable
7 June 2023



Lunar Outpost™



Lunar Outpost™ | EU



Lunar Outpost™
Oceania



COMPANY OVERVIEW



FOUNDED IN 2017

To advance sustainable space exploration technologies



HQ IN GOLDEN, CO

5 locations established across Colorado, Luxembourg, Australia



80+ EMPLOYEES

Industry leading engineering, business, and operations talent



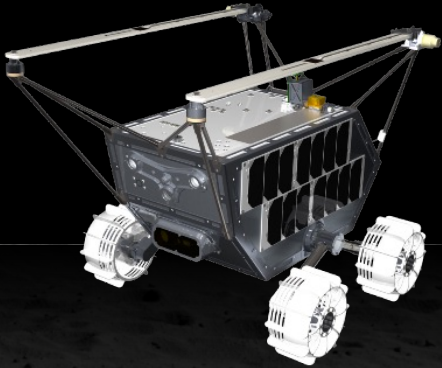
10+ ACTIVE CONTRACTS

Across NASA, defense, and commercial customers

ADVANCED MOBILITY FOR DIVERSE MISSIONS

MAPP 3.0

Science, Prospecting, Tech
Demos, Surface Ops



10KG PAYLOAD



10KM RANGE



14 DAY LIFE



SWARM AUTONOMY

PROJECT-E

Long Duration Payload
Operations and Science



75KG PAYLOAD



60+ KM RANGE



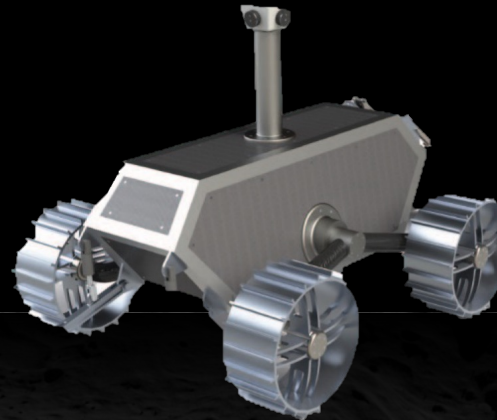
1+ YEAR LIFE



LUNAR NIGHT SURVIVAL

HL-MAPP

Infrastructure, ISRU,
Construction, Surface Ops



250KG PAYLOAD



400+ KM RANGE



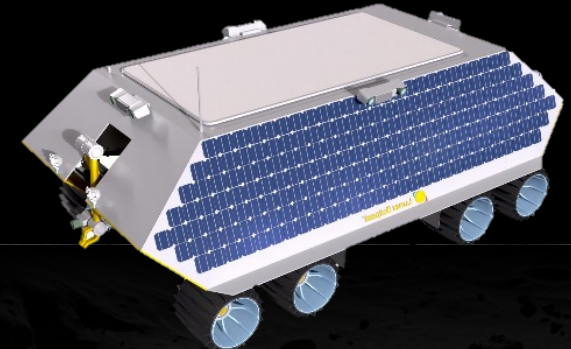
5+ YEAR LIFE



PSR TRAVERSAL

HIPPO

Bulk Regolith Manipulation,
Long Distance Transport



1,000KG+ PAYLOAD



1,000KM+ RANGE



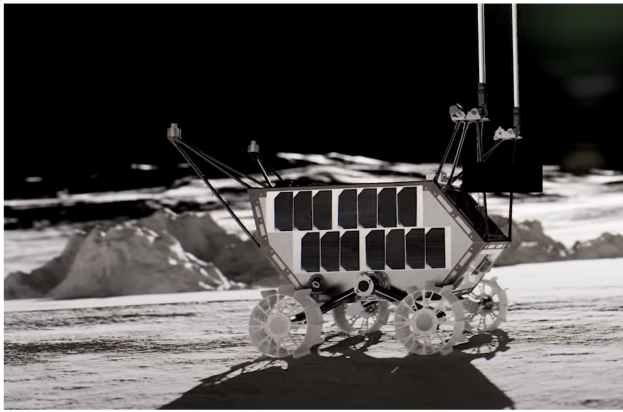
5+ YEAR LIFE



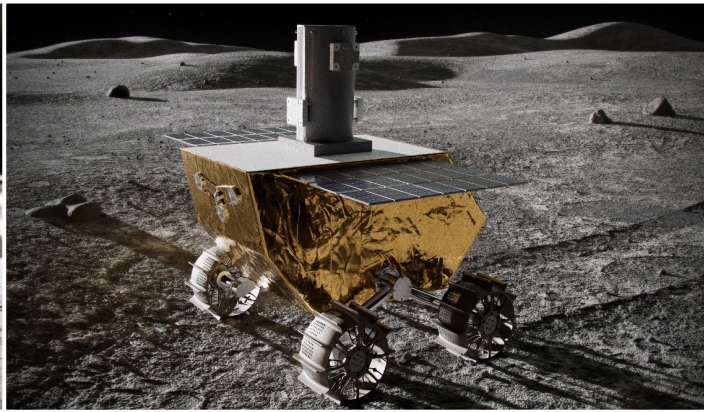
HEAVY SURFACE OPS

REGULAR LUNAR MISSIONS BEGINNING IN 2023

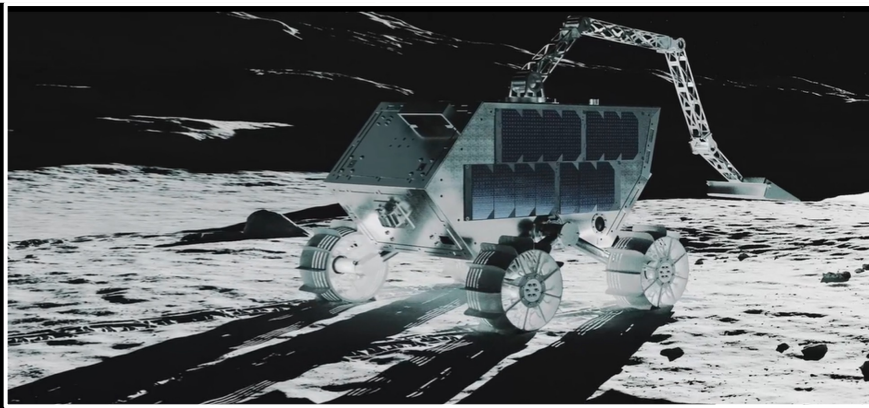
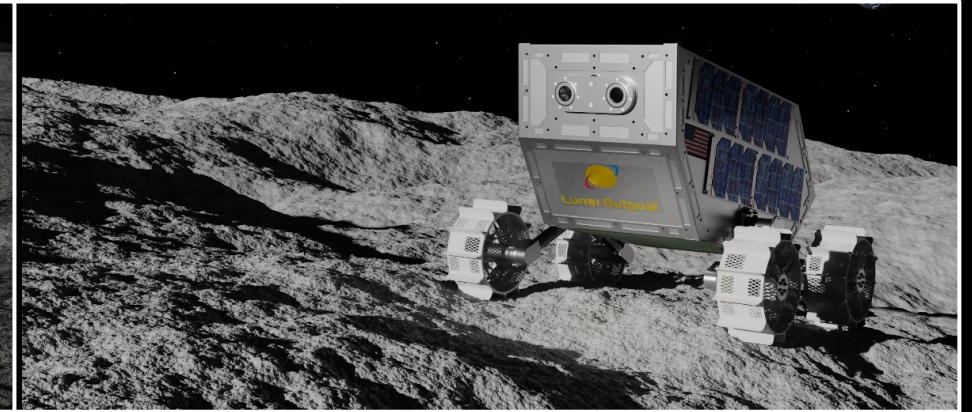
MISSION 1: SHACKLETON RIDGE
LAUNCHING 2023



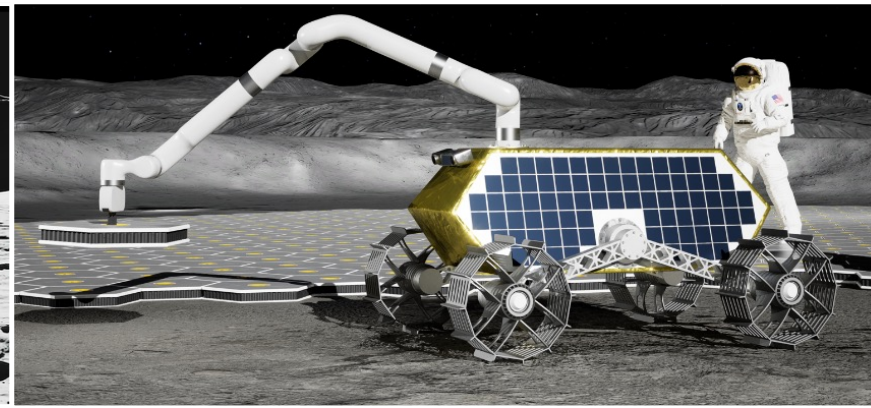
MISSION 2: REINER GAMMA
LAUNCHING 2024



MISSION 3
LAUNCHING 2025

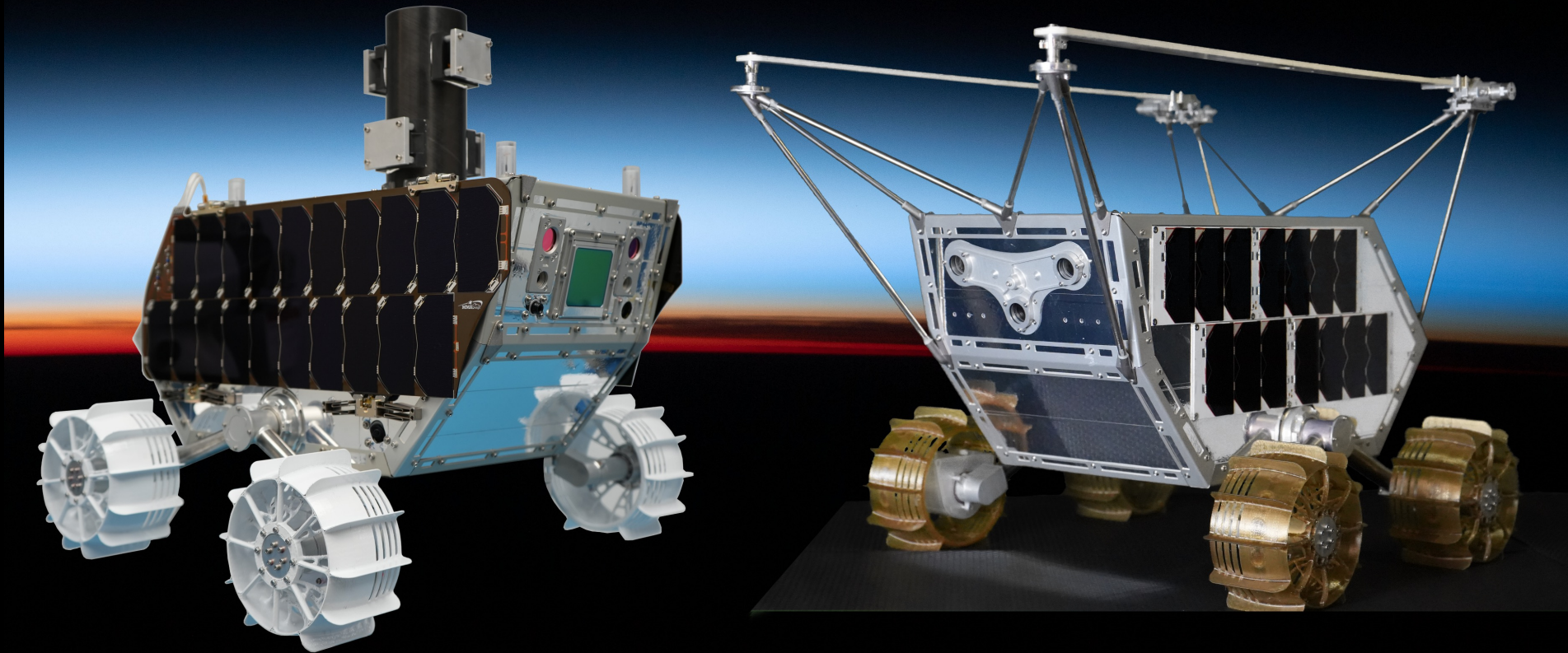


MISSION 4: ASA TRAILBLAZER MISSION, 2026



MISSION 5: SOUTH POLE, 2026

Flight Models Delivered!



LUNAR VOYAGE 3

LAUNCHING 2026, LUNAR SOUTH POLE

MISSION OPPORTUNITIES



TECH DEMOS



EXPLORATION PAYLOADS



PROSPECTING DATA



COMMERCIAL PAYLOADS



PAYLOAD

Up to 10kg



RANGE

10km

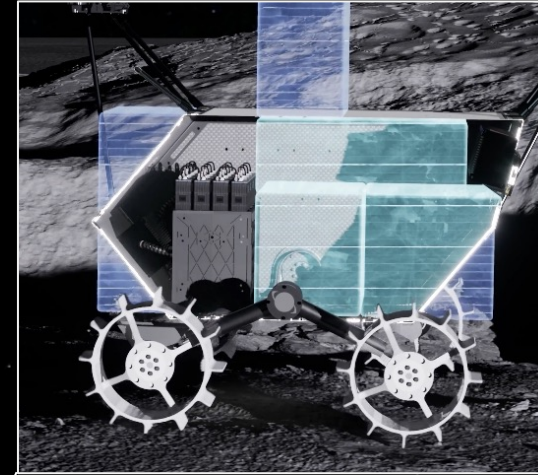
DATA RETURN

54 Mbps

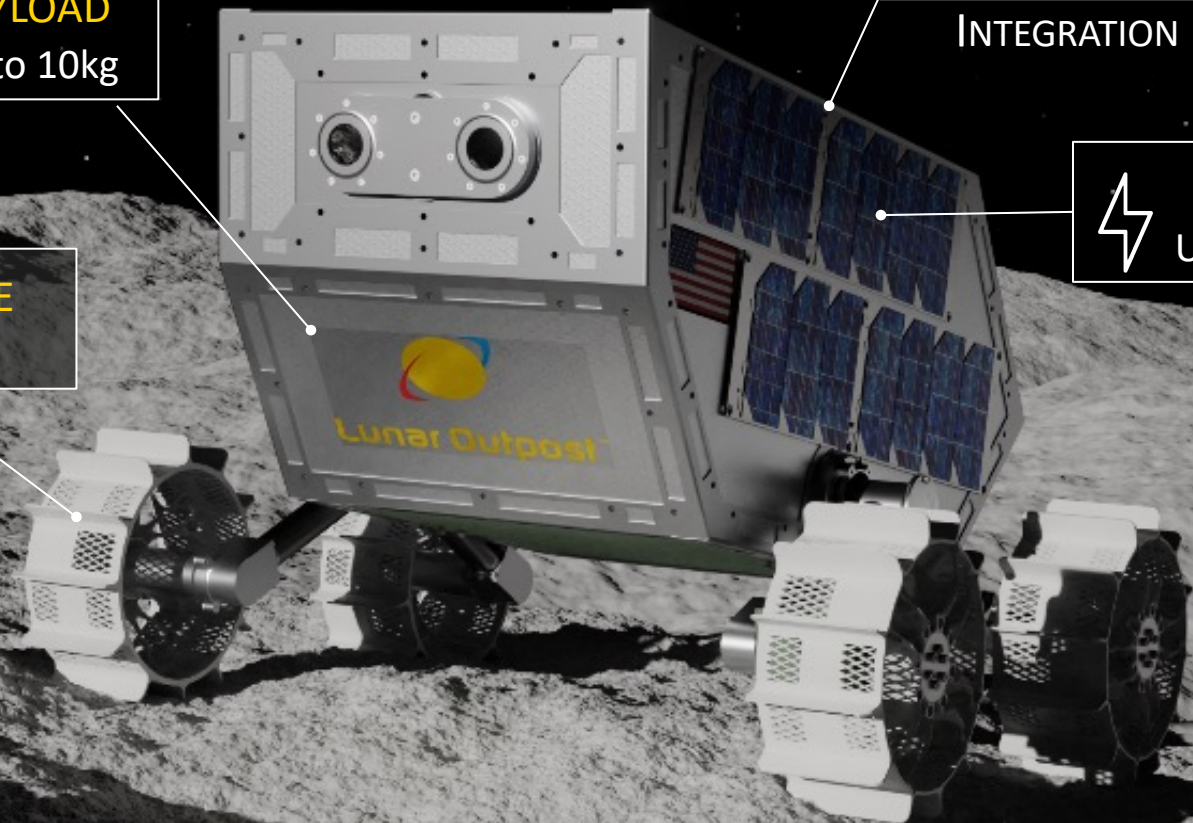


POWER

Up to 35W



INTEGRATION OPTIONS



LUNAR VOYAGE 5

LAUNCHING 2026, LUNAR SOUTH POLE

MISSION OPPORTUNITIES



LARGE TECH DEMOS



INFRASTRUCTURE OPERATIONS



COMMERCIAL PAYLOADS



PAYLOAD
Up to 75kg



POWER
Up to 240W



RANGE
400km



NIGHT SURVIVAL
1+ year
mission duration

DATA RETURN
120 Mbps

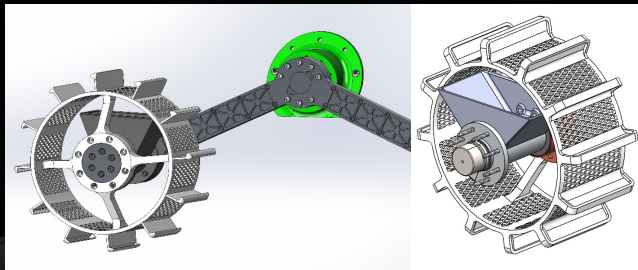


Space Resources Contract

Assumptions:

- 50g-500g of regolith
- “As collected condition”, any location
- Provide imagery, location data
- Analytical mass determination
- In-place ownership transfer to NASA
- Complete activity by 2024

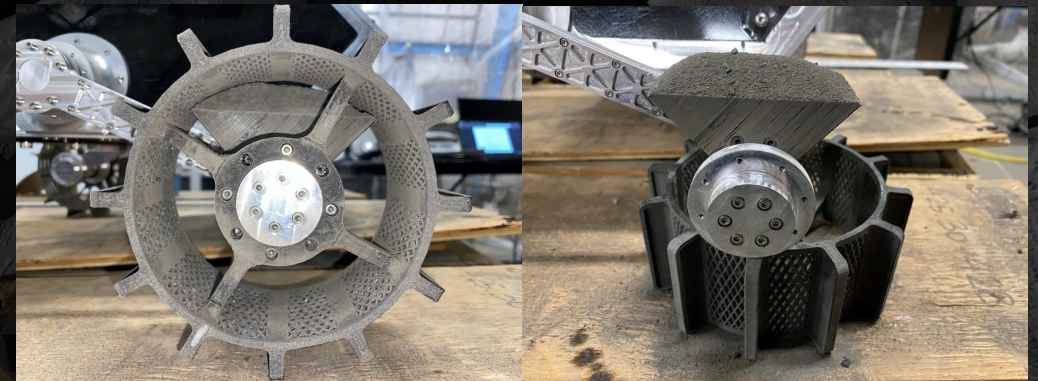
Proposed: Hopper holds 50g of regolith at 1.5 g/cm^3 ,
requires 500m of driving to fill



Patent Pending USPTO #63235944 - Lunar Outpost Inc.



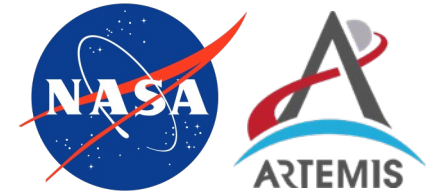
Tested: Hopper held 139.5g of JSC-1a at 1.36 g/cm^3 ,
required 2m of driving to fill





Lunar Outpost Oceania

- ❖ Founded 2022, HQ in Melbourne, Victoria
- Technical expertise to advance Australia's long-term vision
- Novel, scalable zero emission technologies
- Environmental monitoring systems
- Sustainable presence in space and on Earth



Moon to Mars: Trailblazer

The EPE & Lunar Outpost Oceania Consortium:

- Collaborate with the best people from Australian research & industry organisations
- Accelerate capability development in Australia's space ecosystem
- Invest in new jobs, borrowing US space experience
- Develop talent and teams, partnerships and pathways
- Inspire with possibility and involve in real opportunity
- Deliver new Australian technology, designed and built here

G'DAY
MOON

The Consortium

NORTHROP GRUMMAN ViPAC

BHP

 THE UNIVERSITY of ADELAIDE
 ELEMENT ROBOTICS
 INOVOR

 COLORADO SCHOOL OF MINES



EPE

Trusted to Protect

 SABER
ASTRONAUTICS

ONE GIANT Leap
Australia 



Australian National University



Lunar Outpost™ | OC



 RMIT
UNIVERSITY



MELBOURNE SPACE
LABORATORY



EPE. Trusted to Protect.

- Australian owned and operated for over 25 years
- Enabling and protecting Australians in hazardous environments
- Over 40 technical experts based in Brisbane, Canberra and New Zealand, developing and delivering new capabilities
- Trusted supplier of product and services to the Australian government, State governments, Commonwealth agencies, NZ government and United Nations
- Supply of OEM equipment, technical and product development of novel products and capabilities
- Collaboration and innovation with Research organisations (CSIRO, DST, Universities) and Industry to deliver new capabilities and value creation for Australia
- High Assurance Robotics and Autonomous Systems, Sensors/Perception, Navigation, Complex Technology Integrations, Remote Operation, Lunar Test Range (validation & verification), NIST Standards conformance, Software Assurance, Program Management



Lunar Outpost Oceania

Investing in new Australian Team

Project Manager



Joseph Kenrick

Sr. Operations Manager



Kathie Van Vugt

Principal Systems Engineer



Kathryn Doyle

Marketing Manager



Kealy O'Brien

Outreach Coordinator



Lauren Fell

Project Engineer



Henry Lourey

Mechanical Engineers



Ayden Monsant



Chloe Chang



Siena Zubcic

Electrical Engineers



Will De La Rue



Christos Lillis

Software Engineers



Liam Whittle



Jory Braun



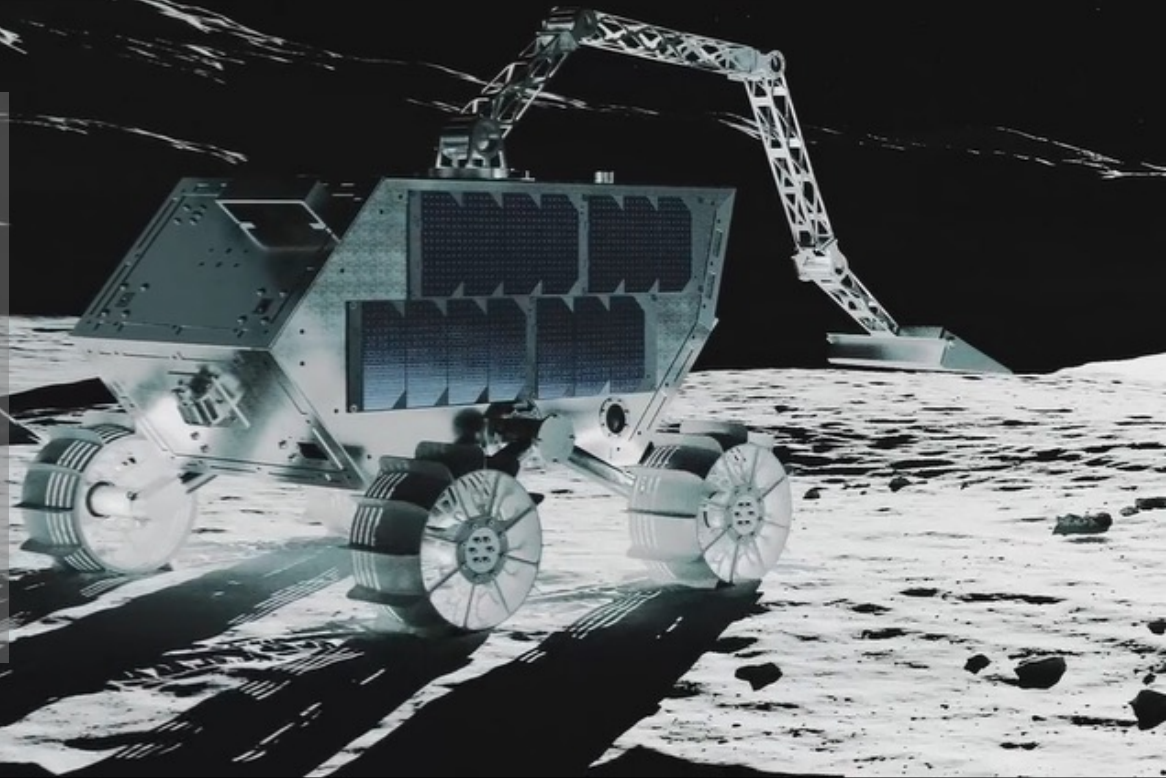
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Oceania

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Looking Ahead

- Crowd source innovation challenge
- PhD, Masters, and Internships in Melbourne, Canberra, and Adelaide to support Trailblazer
- More to come...



LunarOutpost.com.au

EPEquip.com



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