



Press Release

December 18, 2024
ispace, inc.

ispace Announces SMBC x HAKUTO-R Mission 2 Venture Moon Mission Milestones & Ventures

Launch Window Narrowed to Six-Day Window opening mid-January

TOKYO –December 18, 2024 – ispace, inc. (ispace) ([TOKYO: 9348](#)), a global lunar exploration company, today released its SMBC x HAKUTO-R Venture Moon Mission 2 Milestones & Ventures, outlining its mission objectives and lunar surface exploration goals, as well as the opening of a six-day launch window mid-January, the company announced in a Keynote.

ispace Mission 2 will launch to the Moon on a SpaceX Falcon 9 rocket along with the Firefly Blue Ghost Mission 1 which is set to launch during a six-day window that opens no earlier than mid-January 2025. The ispace RESILIENCE lunar lander will be the second to deploy during the mission. The RESILIENCE lander will take a low energy orbit as done during Mission 1, so transit will take several months ahead of a targeted landing 4 to 5 months after launch.

“Today, we are excited to announce that in approximately one month, ispace’s historic Mission 2 will be launching and we will make our second attempt to land on the Moon,” said Takeshi Hakamada, Founder & CEO of ispace. “Everyone from our employees, shareholders, and partner companies have been working on the development of the RESILIENCE lander and TENACIOUS, our lunar micro-rover, drawing motivation from each other to achieve results. As organizations, companies, and missions around the world are aiming for the Moon, ispace will continue to capitalize on our achievements during Mission 2, to lead the world in the development of the lunar economy. We hope you will join us. See you on the Moon!”

■ Mission 2 Milestones & Ventures

As done in advance of Mission 1, ispace today released a transparent set of criteria known as Mission 2 Milestones between launch and landing and aims to achieve the success criteria established for each of these milestones. Like Mission 1, the results from this mission as part of the HAKUTO-R lunar exploration program, will be weighed and evaluated against the criteria and lessons learned will be incorporated into future missions already in development.

Mission 2 Milestones
We have set 10 milestones, which we aim to achieve during Mission 2. Each milestone has separate success criteria.

Success 1 [L+2-3 days]
Completion of Launch Preparations

- Complete all development processes of the RESILIENCE lunar lander before flight operations
- Contract and prepare launch vehicle, and complete integration of lunar lander into the launch vehicle
- Prove ability to flexibly manufacture and assemble landers in various geographic locations of the world

Success 2 [L+1 hour]
Completion of Launch and Deployment

- Complete successful separation of the lunar lander from the launch vehicle
- Reaffirm that ispace lunar lander design and structure is capable of withstanding the harsh conditions during launch on its second mission, offering valuable information towards future development and missions

Success 3 [Several hours]
Establishment of a Steady Operation State

- Establish communication link between the lander and Mission Control Center, confirm a stable attitude, as well as start stable generation of electrical power in orbit

Success 4 [L+1-2 days]
Completion of first Orbital Control Maneuver

- Complete the first orbital control maneuver, setting the lander on a course towards the Moon

Success 5 [L+1 month]
Completion of Lunar Flyby

- Complete a lunar flyby approximately one month after launch
- Begin Deep Space Flight operations

Success 6 [L+3-3.5 months]
Completion of all Deep-Space Orbital Control Maneuvers before LOI

- Complete all planned deep space orbital control maneuvers by utilizing gravity assist effects and successfully target the first lunar orbit insertion maneuver
- Reaffirm the deep-space survivability of ispace's lander design, as well as the viability of ispace's orbital planning

Success 7 [L+4 months]
Enter Lunar Orbit

- Complete the first lunar orbit insertion maneuver and confirm the lander is in a lunar orbit
- Reaffirm the ability of ispace to deliver spacecraft and payloads into stable lunar orbits

Success 8 [L+4.5 months]
Completion of all Orbital Control Maneuvers in Lunar Orbit

- Complete all planned lunar orbital control maneuvers before the landing sequence
- Confirm the lander is ready to start the landing sequence

Success 9 [L+4.5 months]
Completion of Lunar Landing Sequence

- Complete the landing sequence, verifying key landing abilities for future missions

Success 10 [L+4.5 months]
Establish Steady System State after Landing

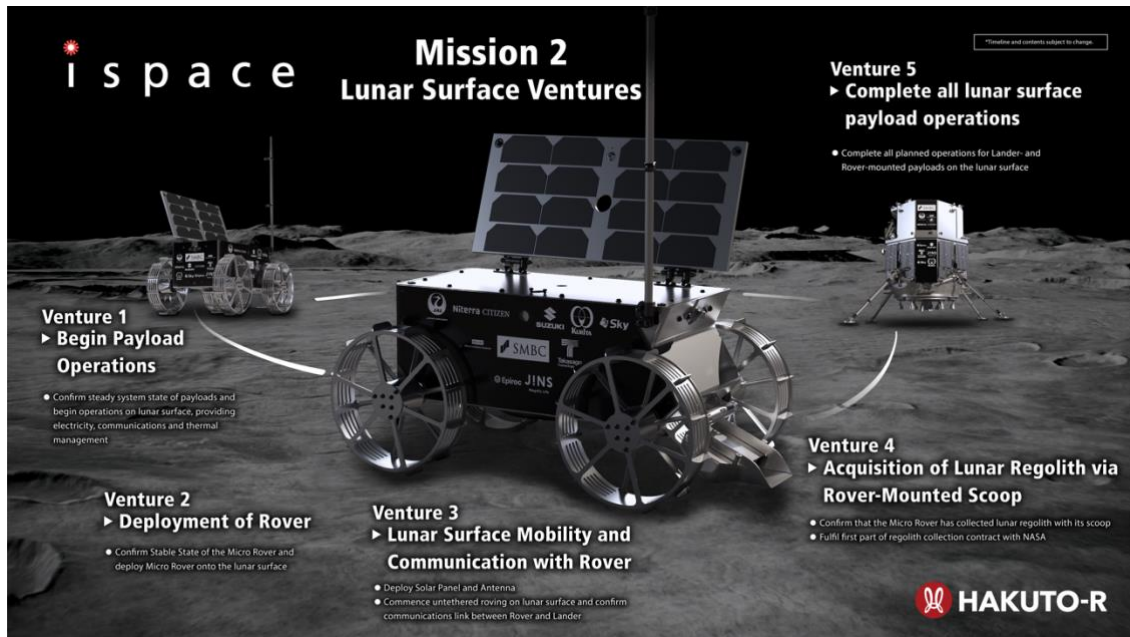
- Establish a steady telecommunication and power supply for the lander on the lunar surface after landing

HAKUTO-R

*Timeline and contents subject to change.

The Mission 2 Milestones include 10 milestones. As part of the mission, the RESILIENCE lander will utilize a low energy flight taking several months to transfer to the Moon before injecting into lunar orbit and then attempting a soft landing on the surface. Its trajectory will take it approximately 1 million kilometers from the Earth at its farther point. Approximately one month into the journey, RESILIENCE will attempt a lunar flyby (Success 5).

In addition to the Mission 2 Milestones, ispace released Mission 2 Ventures, a set of criteria to measure effectiveness of lunar exploration operations on the surface of the Moon after landing. The Ventures include objectives for TENACIOUS, the first lunar micro rover to be launched to the Moon, designed, manufactured, and assembled in Europe with co-funding from the Luxembourg Space Agency through a European Space Agency contract with the Luxembourg National Space Programme, LuxIMPULSE.



TENACIOUS will be operated by ispace-EUROPE once deployed on the lunar surface and will undertake ventures including delivering the MoonHouse payload to the lunar surface as well as collecting lunar regolith under a contract with NASA.

The primary landing site for Mission 2 will be near the center of Mare Frigoris (Sea of Cold), 60.5 degrees north latitude and 4.6 degrees west longitude, an expansive basaltic plain situated in the Moon's northern hemisphere.

The primary landing site was chosen along with multiple contingencies to ensure operational flexibility while maintaining scientific and logistical continuity. The site meets the technical specifications of the RESILIENCE lander as well as exploration objectives for the TENACIOUS micro rover, in addition to mission requirements of other payload customers. Careful consideration of the target site criteria included continuous sun-illumination duration and communication visibility from the Earth.

■ Mission 2 Lunar Insurance

In addition to mission updates, ispace also announced that it has obtained Lunar Insurance from Mitsui Sumitomo Insurance Company, Limited (MS) to cover risks associated with Mission 2. The insurance policy was developed jointly with MSI to ensure the sustainable and stable realization of future missions.

ispac is leveraging its global presence through its three business units in Japan, the U.S., and Luxembourg, for the simultaneous development of upcoming missions. Mission 2 is led by ispace Japan. Mission 3, debuting the APEX 1.0 lunar lander, is led by ispace-U.S. and is expected to launch in 2026. Mission 6, which will utilize the Series 3 lander, currently being designed in Japan, is scheduled to be launched by 2027.

ispace Mission 2 Milestones

	Milestone	Milestone Success Criteria
Success 1	Completion of Launch Preparations	<ul style="list-style-type: none"> Complete all development processes of the RESILIENCE lunar lander before flight operations Contract and prepare launch vehicle, and complete integration of lunar lander into the launch vehicle Prove ability to flexibly manufacture and assemble landers in various geographic locations of the world
Success 2	Completion of Launch and Deployment	<ul style="list-style-type: none"> Complete successful separation of the lunar lander from the launch vehicle Reaffirm that ispace's lander design and structure is capable of withstanding the harsh conditions during launch on its second mission, offering valuable information towards future development and missions
Success 3	Establishment of Steady Operation State	<ul style="list-style-type: none"> Establish communication link between the lander and Mission Control Center, confirm a stable attitude as well as start stable generation of electrical power in orbit.
Success 4	Completion of first Orbital Control Maneuver	<ul style="list-style-type: none"> Complete the first orbit control maneuver, setting the lander on a course towards the Moon
Success 5	Completion of Lunar Flyby	<ul style="list-style-type: none"> Complete a lunar flyby approximately one month after launch Begin Deep Space Flight operations
Success 6	Completion of all Deep-Space Orbital Control Maneuvers before LOI	<ul style="list-style-type: none"> Complete all planned deep space orbit control maneuvers by utilizing gravity assist effects and successfully target target the first lunar orbit insertion maneuver. Reaffirm the deep-space survivability of ispace's lander designs, as well as the viability of space's lunar planning.
Success 7	Enter Lunar Orbit	<ul style="list-style-type: none"> Complete the first lunar orbit insertion maneuver and confirm that the lander is in a lunar orbit Reaffirm the ability of ispace to deliver spacecraft and payloads into stable lunar orbits
Success 8	Completion of all Orbital Control Maneuvers in lunar orbit	<ul style="list-style-type: none"> Complete all planned lunar orbital control maneuvers before the landing sequence Confirm the lander is ready to start the landing sequence
Success 9	Completion of Lunar Landing Sequence	<ul style="list-style-type: none"> Complete the landing sequence, verifying key landing abilities for future missions
Success 10	Establish Steady System after Landing	<ul style="list-style-type: none"> Establish a steady telecommunication and power supply on the lunar surface after landing

ispace Mission 2 Ventures

	Venture	Criteria
Venture 1	Begin Payload Operations	<ul style="list-style-type: none"> Confirm steady system state of payloads and begin operations on lunar surface, providing electricity, communications and thermal management
Venture 2	Deployment of Rover	<ul style="list-style-type: none"> Confirm Stable State of Micro Rover and deploy Micro Rover onto the lunar surface
Venture 3	Lunar Surface Mobility and Communication with Rover	<ul style="list-style-type: none"> Deploy Solar Panel and Antenna Commence untethered roving on lunar surface and confirm communications link between Rover and Lander
Venture 4	Acquisition of Lunar Regolith via Rover-Mounted Scoop	<ul style="list-style-type: none"> Confirm that the Micro Rover has collected lunar regolith with its scoop Fulfil first part of regolith contract with NASA
Venture 5	Complete all lunar surface payload operations	<ul style="list-style-type: none"> Complete all planned operations for Lander- and Rover-mounted payloads on the lunar surface

About ispace

ispace, a global lunar resource development company with the vision, “Expand our planet. Expand our future.”, specializes in designing and building lunar landers and rovers. ispace aims to extend the sphere of human life into space and create a sustainable world by providing high-frequency, low-cost transportation services to the Moon. The company has business entities in Japan, Luxembourg, and the United States with approximately 300 employees worldwide. For more information, visit: www.ispace-inc.com and follow us on X: [@ispace_inc](https://twitter.com/ispace_inc).