Press Release

November 17, 2022
ispace, inc.

ispace Announces Mission 1 Launch Date

Scheduled to launch on November 28, 2022, on a SpaceX Falcon 9 rocket

TOKYO—November 17, 2022— ispace, inc., a global lunar exploration company, plans to launch its Mission 1 (M1) lunar lander, part of the HAKUTO-R lunar exploration program, on Nov. 28, 2022, at the earliest, on a SpaceX Falcon 9 rocket from Cape Canaveral Space Force Station, Founder & CEO Takeshi Hakamada announced today at a press conference in Tokyo.

In addition to the launch date announcement, ispace unveiled 10 mission milestones, the landing site for its M1 mission, its seventh payload and the HAKUTO-R countdown clock at the press conference held outside of the company's mission control center.

HAKUTO-R Mission 1 Launch Schedule

Launch date:	Monday, November 28, 2022 *
Time:	3:46 a.m., Monday, November 28, 2022 (U.S. Eastern Standard Time) 5:46 p.m., Monday, November 28, 2022 (Japan Standard Time)
Launch site:	Space Launch Complex 40, Cape Canaveral Space Force Station, Florida, U.S.

*The above dates and times are subject to change depending on weather and other conditions.

"Our first mission will lay the groundwork for unleashing the moon's potential and transforming it into a robust and vibrant economic system," said Takeshi Hakamada, Founder and CEO of ispace. "We look forward to contributing to NASA's Artemis program as a commercial lunar transportation service and pioneering the development of future industries and connecting the Earth to the Moon and beyond."

Mission 1 Milestones and Corporate Business Model

During the event, ispace released Mission Milestones for its inaugural mission at the press conference held outside of its Mission Control Center in Nihonbashi, Tokyo.

#	Milestone	Success Criteria per Milestone
1	Completion of Launch Preparations	● Complete all development processes of the Series 1 lunar lander before flight operations. ● Contract and prepare launch vehicle, and complete integration of lunar lander into the launch vehicle.
2	Completion of Launch and Deployment	● Complete successful separation of the lunar lander from the launch vehicle. ● Prove that the lander's structure is capable of withstanding the harsh conditions during launch, validating the design and gathering information towards future developments and missions.
3	Establishment of a Steady Operation State (*Initial Critical Operation Status)	● 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. The completion of this step verifies the integrity of lander core systems and customer payloads.
4	Completion of first orbital control maneuver	● Complete the first orbital control maneuver, setting the lander on a course towards the Moon and verifying operation of the main propulsion system, as well as related guidance, control, and navigation system.
5	Completion of stable deep-space flight operations for one month	● Prove that the lander is capable of steady deep-space flight by completing a nominal cruise and orbital control maneuvers over a 1 month period.
6	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 1st lunar orbit insertion maneuver. This stage proves the ability of the lander's deep-space survivability, as well as the viability of ispace's orbital planning.
7	Reaching the lunar gravitational field / lunar orbit	● Complete the first lunar orbit insertion maneuver and confirm the lander is in a lunar orbit, verifying the ability of ispace to deliver spacecraft and payloads into stable lunar orbits.
8	Completion of all orbit 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.
9	Completion of lunar landing	● Complete the landing sequences, verifying key landing abilities for future missions.
10	Establishment of a steady system state after lunar landing	● Establish a steady telecommunication and power supply on the lunar surface after landing to support customer payloads' surface operations.

M1 is considered a technology demonstration with an overall objective to validate the lander's design and technology, as well as ispace's business model to provide reliable lunar transportation and data services. For M1, ispace has set 10 milestones between launch and landing, and aims to achieve the success criteria established for each of these milestones. Recognizing the possibility of an anomaly during the mission, the results will be weighed and evaluated against the criteria and incorporated into future missions, supporting the company's evolution of sustainable technology and its business models.

The accumulated data and experience from M1 will be incorporated into future designs and operations to enhance missions, beginning immediately with Mission 2, which is already in the development stage and is scheduled for 2024. As a private corporation, ispace's business model calls for continuous, short cycles of technology development to increase capability and reliability in order to usher in an era of full-scale commercialization of the space industry. This model will incorporate knowledge from both missions into Mission 3 (M3) planned for 2025. M3 will contribute to NASA's Artemis Program under its Commercial Lunar Payload Services program with a mature lander design and operations based on data and experience acquired during the first two missions.

Mission 1 Landing Site Announcement

Along with the launch date and milestones, ispace announced its primary landing site, the Atlas Crater, located at 47.5°N, 44.4°E, on the southeastern outer edge of Mare Frigoris ("Sea of Cold"), chosen to maintain flexibility during operations. The primary landing site was chosen along with multiple contingencies, which may be used depending on variables that occur during transit. The site meets the technical specifications of the lander technology demonstration mission, the scientific exploration objectives for the MBRSC mission, as well as the mission requirements of our other customers. Careful consideration of the target site criteria included continuous sun-illumination duration and communication visibility from the Earth. Alternative landing targets include Lacus Somniorum, Sinus Iridium and Oceanus Procellarum, among others. Landing is currently expected to take place around the end of April 2023.

Final Mission 1 Payload Revealed

During the press conference, ispace announced its final payload, a music disc containing the song "SORATO" played by Japanese rock band Sakanaction. The song was originally written in 2018 in support of "Team HAKUTO," a participant in the Google Lunar XPRIZE and precursor to ispace. Sorato was also the name of the lunar rover developed by Team HAKUTO during the Google Lunar XPRIZE, which closed without awarding prize money.

"We couldn't make it happen back then, but I was surprised to hear just 4 years after releasing the song we had this opportunity," said Ichiro Yamaguchi, guitarist, vocalist and founding member of the band. "I am looking forward to the launch. I know that there will moments where you will face difficulties due to various pressures and expectations, but we, including myself, will continue to support you. We hope that you will not be defeated and will face the challenge."

Sakanaction was founded in 2005 and describes itself as a rock band with folksy melodies and a club music approach. They have released seven albums, regularly sell out arena tours and rank at the top of the charts in Japan.

An image of Sakanaction. Ichiro Yamaguchi (center) spoke via video message during the press conference.

Mission 1 Countdown Clock

In collaboration with ispace corporate partner CITIZEN, the HAKUTO-R M1 Countdown clock was unveiled in front of the HAKUTO-R Mission Control Center (MCC).

The countdown clock's time system, which can receive GPS satellite and keep accurate time, is connected to the time server of CITIZEN. It is also the same time system that is used in the MCC, which plays an important role in keeping time during the launch and mission.

About ispace, inc.

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 offices in Japan, Luxembourg, and the United States with more than 200 employees worldwide. ispace technologies U.S., inc. is part of a team led by Draper, which was awarded a NASA Commercial Lunar Payload Services (CLPS) Program contract to land on the far side of the Moon by 2025 (as of November 2022). Both ispace, and ispace EUROPE S.A. (ispace EU) were awarded contracts to collect and transfer ownership of lunar regolith to NASA, and ispace EU was selected by ESA to be part of the Science Team for PROSPECT, a program which seeks to extract water on the Moon.

Established in 2010, ispace operated “HAKUTO” which was one of five finalist teams in the Google Lunar XPRIZE race. The company’s first mission as part of its HAKUTO-R lunar exploration program is currently planned for as early as November 2022 and is expected to launch from the United States on a SpaceX Falcon 9 rocket. ispace has also launched a lunar data business concept to support new customers as a gateway to conduct business on the Moon.

For more information, visit: www.ispace-inc.com; Follow us on Twitter: @ispace_inc.

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Mission 1 Milestones

We have set 10 milestones, which we aim to achieve during the Mission 1. Each of the milestones has separate success criteria.

*Timeline and contents subject to change.

▶ Success 1 [L - 2-3 Days]

Completion of Launch Preparations

- Complete all development processes of the Series 1 lunar lander before flight operations.
- Contract and prepare launch vehicle, and complete integration of lunar lander into the launch vehicle.

▶ Success 2 [L + 1 Hour]

Completion of Launch and Deployment

- Complete successful separation of the lunar lander from the launch vehicle.
- Prove that the lander's structure is capable of withstanding the harsh conditions during launch, validating the design and gathering information towards future developments and missions.

▶ Success 3 [L + 1.5 Hours]

Establishment of a Steady Operation State

(*Initial Critical Operation Status)

- 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. The completion of this step verifies the integrity of lander core systems and customer payloads.

▶ 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 and verifying operation of the main propulsion system, as well as related guidance, control, and navigation system.

▶ Success 5 [L + 1 Month]

Completion of stable deep-space flight operations for one month

- Prove that the lander is capable of steady deep-space flight by completing a nominal cruise and orbital control maneuvers over a 1 month period.

▶ 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. This stage proves the ability of the lander's deep-space survivability, as well as the viability of ispace's orbital planning.

LOI = Lunar Orbit Insertion

▶ Success 7 [L + 4 Months]

Reaching the lunar gravitational field / lunar orbit

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

▶ Success 8 [L + 4.5 Months]

Completion of all orbit 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, 1 Hour]

Completion of lunar landing

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

▶ Success 10 [L + 4.5 Months, 1.5 Hours]

Establishment of a steady system state after lunar landing

- Establish a steady telecommunication and power supply on the lunar surface after landing to support customer payloads' surface operations.

HAKUTO-R