

Japanese company's lander rockets toward moon with UAE rover

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A SpaceX Falcon 9 rocket, with a payload including two lunar rovers from Japan and the United Arab Emirates, lifts off from Launch Complex 40 at the Cape Canaveral Space Force Station in Cape Canaveral, Fla., Sunday, Dec. 11, 2022. Credit: AP Photo/John Raoux

A Tokyo company aimed for the moon with its own private lander

Sunday, blasting off atop a SpaceX rocket with the United Arab Emirates' first lunar rover and a toylike robot from Japan that's designed to roll around up there in the gray dust.

It will take nearly five months for the lander and its experiments to reach the moon.

The company ispace designed its craft to use minimal fuel to save money and leave more room for cargo. So it's taking a slow, low-energy path to the moon, flying 1 million miles (1.6 million kilometers) from Earth before looping back and intersecting with the moon by the end of April.

By contrast, [NASA's Orion crew capsule with test dummies](#) took five days to reach the moon last month. The lunar flyby mission ended Sunday with a thrilling Pacific splashdown.

The ispace lander will aim for Atlas crater in the northeastern section of the moon's near side, more than 50 miles (87 kilometers) across and just over 1 mile (2 kilometers) deep. With its four legs extended, the lander is more than 7 feet (2.3 meters) tall.

With a science satellite already around Mars, the UAE wants to explore the moon, too. Its rover, named Rashid after Dubai's royal family, weighs just 22 pounds (10 kilograms) and will operate on the surface for about 10 days, like everything else on the mission.



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Emirates project manager Hamad AlMarzooqi said landing on an unexplored part of the moon will yield "novel and highly valued" scientific data. In addition, the lunar surface is "an ideal platform" to test new tech that can be used for eventual human expeditions to Mars.

Plus there's national pride—the rover represents "a pioneering national endeavor in the space sector and a historic moment that, if successful, will be the first Emirati and Arab mission to land on the surface of the moon," he said in a statement following liftoff.

In addition, the lander is carrying an orange-sized sphere from the Japanese Space Agency that will transform into a wheeled robot on the moon. Also flying: a solid state battery from a Japanese-based spark plug company; an Ottawa, Ontario, company's flight computer with artificial intelligence for identifying geologic features seen by the UAE rover; and 360-degree cameras from a Toronto-area company.



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Hitching a ride on the rocket was a small NASA laser experiment that is

now bound for the moon on its own to hunt for ice in the permanently shadowed craters of the lunar south pole.

The ispace mission is called Hakuto, Japanese for white rabbit. In Asian folklore, a white rabbit is said to live on the moon. A second lunar landing by the private company is planned for 2024 and a third in 2025.

Founded in 2010, ispace was among the finalists in the Google Lunar XPRIZE competition requiring a successful landing on the moon by 2018. The lunar rover built by ispace never launched.

Another finalist, an Israeli nonprofit called SpaceIL, managed to reach the moon in 2019. But instead of landing gently, the spacecraft Beresheet slammed into the moon and was destroyed.

With Sunday's predawn launch from the Cape Canaveral Space Force Station, ispace is now on its way to becoming one of the first private entities to attempt a moon landing. Although not launching until early next year, lunar landers built by Pittsburgh's Astrobotic Technology and Houston's Intuitive Machines may beat ispace to the moon thanks to shorter cruise times.



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This undated photo provided by ispace in November 2022 shows the HAKUTO-R Mission 1 lunar lander encapsulated in a SpaceX Falcon 9 rocket in Cape Canaveral, Fla. Credit: ispace via AP



This time exposure photo shows a SpaceX Falcon 9 rocket, with a payload including two lunar rovers from Japan and the United Arab Emirates, launching from Launch Complex 40 at the Cape Canaveral Space Force Station in Cape Canaveral, Fla., Sunday, Dec. 11, 2022. Credit: AP Photo/John Raoux



This undated image provided by ispace in November 2022 depicts the HAKUTO-R Mission 1 lunar lander on the surface of the moon. Credit: ispace via AP



This time exposure photo taken with a fisheye lens shows a SpaceX Falcon 9 rocket, with a payload including two lunar rovers from Japan and the United Arab Emirates, launching from Launch Complex 40 at the Cape Canaveral Space Force Station in Cape Canaveral, Fla., Sunday, Dec. 11, 2022, as seen from the deck of Grills Seafood Deck at Port Canaveral. Credit: Malcolm Denmark/Florida Today via AP



This undated image provided by ispace in November 2022 depicts the HAKUTO-R Mission 1 lunar lander in orbit around the moon before an attempted landing on the surface. Credit: ispace via AP

Only Russia, the U.S. and China have achieved so-called "soft landings" on the moon, beginning with the former Soviet Union's Luna 9 in 1966. And only the U.S. has put astronauts on the lunar surface: 12 men over six landings.

Sunday marked the 50th anniversary of astronauts' last lunar landing, by Apollo 17's Eugene Cernan and Harrison Schmitt on Dec. 11, 1972.

NASA's Apollo moonshots were all "about the excitement of the technology," said ispace founder and CEO Takeshi Hakamada, who wasn't alive then. Now, "it's the excitement of the business."

"This is the dawn of the lunar economy," Hakamada noted in the SpaceX launch webcast. "Let's go to the moon."

Liftoff should have occurred two weeks ago, but was delayed by SpaceX for extra rocket checks.

Eight minutes after launch, the recycled first-stage booster landed back at Cape Canaveral under a near full moon, the double sonic booms echoing through the night.

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