

Japanese firm's lunar lander on way to the moon

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In news— Japanese company Ispace has recently launched a lander named M1 under its HAKUTO-R mission with the help of Falcon 9 rocket of SpaceX.

About the mission-

- The payloads on M1 include a rover from the United Arab Emirates and a small two-wheeled Transformers-like robot for the Japanese space agency.
- This will be the first privately-led Japanese mission to land on the lunar surface.
- **The Ispace company started as one of the competitors for the Google Lunar X Prize**, a competition that offered a \$20 million prize for the first private spacecraft to land on the moon, travel 500 meters and send back video from the lunar surface.
- At the time, the Japanese group, known as Team Hakuto, focused on developing a rover, and it was to rely on a competing team from India for the ride to the surface of the moon.
- The group known as Team Hakuto evolved into Ispace, attracting sizable investment, and the company plans to launch a series of commercial moon landers in the coming years.
- The Japanese company's lander is not the only passenger on the flight. A secondary payload on the Falcon 9 is a small NASA mission, Lunar Flashlight, which is to enter an elliptical orbit around the moon and use an infrared laser to probe the deep, dark craters at the moon's polar regions.
- Much like some other recent moon missions, **M1 is taking a circuitous, energy-efficient trip to the moon** and will not land, in the Atlas Crater in the Northern Hemisphere

of the moon, until late April. The fuel-efficient trajectory allows the mission to pack in more payload and carry less fuel.

Moon's other recent visitors

- As part of the **Artemis I mission, NASA's Orion spacecraft travelled to**, then orbited the moon. **It returned to Earth recently, with a splashdown into the Pacific Ocean.**
- A small NASA-financed mission called **CAPSTONE** also arrived recently to explore an orbit in which NASA plans to build a lunar outpost where astronauts will stop on the way to the moon.
- And while it hasn't arrived yet, the moon will get a third new visitor in January 2023. **Danuri, a South Korean space probe, was launched in August 2022** and is due to enter lunar orbit Dec. 16.

Are other companies attempting what Ispace is doing?

- A NASA program called Commercial Lunar Payload Services, or CLPS, has been looking to send experiments to the surface of the moon.
- The first two missions, from Intuitive Machines of Houston and Astrobotic Technology of Pittsburgh, plan to launch next year after considerable delays.
- Intuitive Machines' lander, which could be launched as early as March, could even beat Ispace to the moon because it's using a quick six-day trajectory.