24004 Japan Becomes the Latest Country to Land on the Moon

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A Japanese robotic spacecraft successfully set down on the moon on Friday — but its solar panels were not generating power, which will cut the length of time it will be able to operate to a few hours.

With this achievement, Japan is now the fifth country to send a spacecraft that made a soft landing on the moon.

For JAXA, Japan's space agency which currently operates a variety of robotic science missions in space, this was the first time it had tried to set down on a planetary body elsewhere in the solar system. The spacecraft, the Smart Lander for Investigating Moon, or SLIM, was intended to demonstrate precision landing, within a football field of a targeted destination rather than an uncertainty of miles that most landers are capable of.

The technology could also be useful for future missions like those in NASA's Artemis program. Japan is a partner in that program, which will send astronauts back to the moon in the coming years.

At 10 a.m. Eastern time on Friday — midnight in Japan, the beginning of Saturday — SLIM fired its engines to begin its descent from lunar orbit. At 10:20, its main landing gear touched the surface near a small crater named Shioli in the equatorial region of the moon's near side.

The surface there is angled about 15 degrees, which posed difficulties for landing without tipping over. The designers of SLIM thus decided to tilt the spacecraft to one side just before landing, and then after the initial contact with the ground, SLIM tipped forward onto its front legs.

Immediately after the landing, SLIM was able to send radio signals back to Earth. But the commentator on the webcast at that time said repeatedly, "We are still checking the status." The webcast ended without disclosing SLIM's fate.

Two small rovers were successfully deployed from the lander just before landing.

Deploying such pinpoint landing capabilities in the future would allow spacecraft to aim closer to intriguing places like craters, instead of large flat plains.

Because the moon has no global positioning satellites or radio beacons, spacecraft have to figure out by themselves exactly where they are. Radar pings informed SLIM how high it was and how fast it was moving. A camera taking pictures of the landscape below helped the spacecraft determine its location by matching the pattern of craters it saw with maps stored in its memory.

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