

# India's moon rover completes its walk. Scientists analyzing data looking for signs of frozen water

September 3 2023, by Ashok Sharma

---



This image provided by the Indian Space Research Organisation (ISRO) shows Vikram lander as seen by the navigation camera on Pragyan Rover on Aug. 30, 2023. India's moon rover has confirmed the presence of sulfur and detected several other elements on the surface near the lunar south pole a week after the country's historic moon landing. ISRO says the rover's laser-induced spectroscope instrument also has detected aluminum, iron, calcium, chromium, titanium, manganese, oxygen and silicon. Credit: Indian Space Research Organisation via AP

India's moon rover has completed its walk on the lunar surface and been put into sleep mode less than two weeks after its historic landing near the lunar south pole, India's space mission said.

"The rover completes its assignments. It is now safely parked and set into sleep mode," with daylight on that part of the moon coming to an end, the Indian Space Research Organization said in a statement late Saturday.

The rover's payloads are turned off and the data it collected has been transmitted to the Earth via the lander, the statement said.

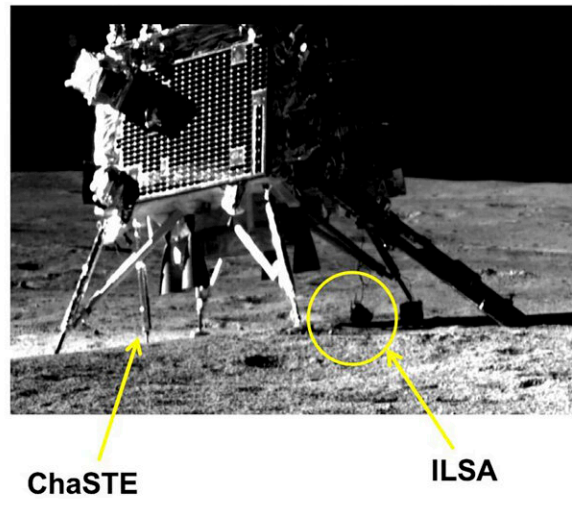
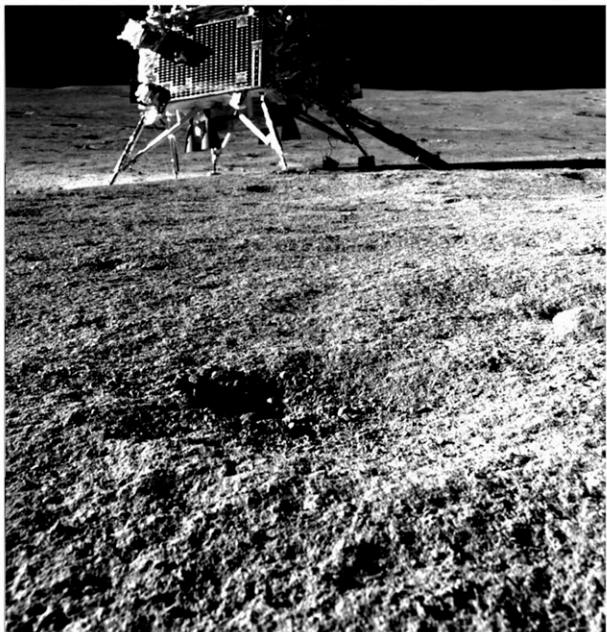
The Chandrayaan-3 lander and rover were expected to operate only for one lunar day, which is equal to 14 days on Earth.

"Currently, the battery is fully charged. The solar panel is oriented to receive the light at the next sunrise expected on September 22, 2023. The receiver is kept on. Hoping for a successful awakening for another set of assignments!" the statement said.

There was no word on the outcome of the rover searches for signs of

frozen water on the lunar surface that could help future astronaut missions, as a potential source of drinking water or to make rocket fuel.

Last week, the space agency said the moon rover confirmed the presence of sulfur and detected several other elements. The rover's laser-induced spectroscope instrument also detected aluminum, iron, calcium, chromium, titanium, manganese, oxygen and silicon on the surface, it said.



This image provided by the Indian Space Research Organisation (ISRO) taken by Pragyan rover of Vikram lander on Aug. 30, 2023. India's moon rover has confirmed the presence of sulfur and detected several other elements on the surface near the lunar south pole a week after the country's historic moon landing. ISRO says the rover's laser-induced spectroscope instrument also has detected aluminum, iron, calcium, chromium, titanium, manganese, oxygen and silicon. Credit: Indian Space Research Organisation via AP

The Indian Express newspaper said the electronics on board the Indian moon mission weren't designed to withstand very low temperatures, less than -120 C (-184 F) during the nighttime on the moon. The lunar night also extends for as long as 14 days on Earth.

Pallava Bagla, a science writer and co-author of books on India's space exploration, said the rover has limited battery power.

The data is back on Earth and will be analyzed by Indian scientists as a first look and then by the global community, he said

By sunrise on the moon, the rover may or may not wake up because the electronics die at such cold temperatures, Bagla said.

"Making electronic circuits and components that can survive the deep cold temperature of the moon, that technology doesn't exist in India," he said.

After a failed attempt to land on the moon in 2019, India last week joined the United States, the Soviet Union and China as only the fourth country to achieve this milestone.

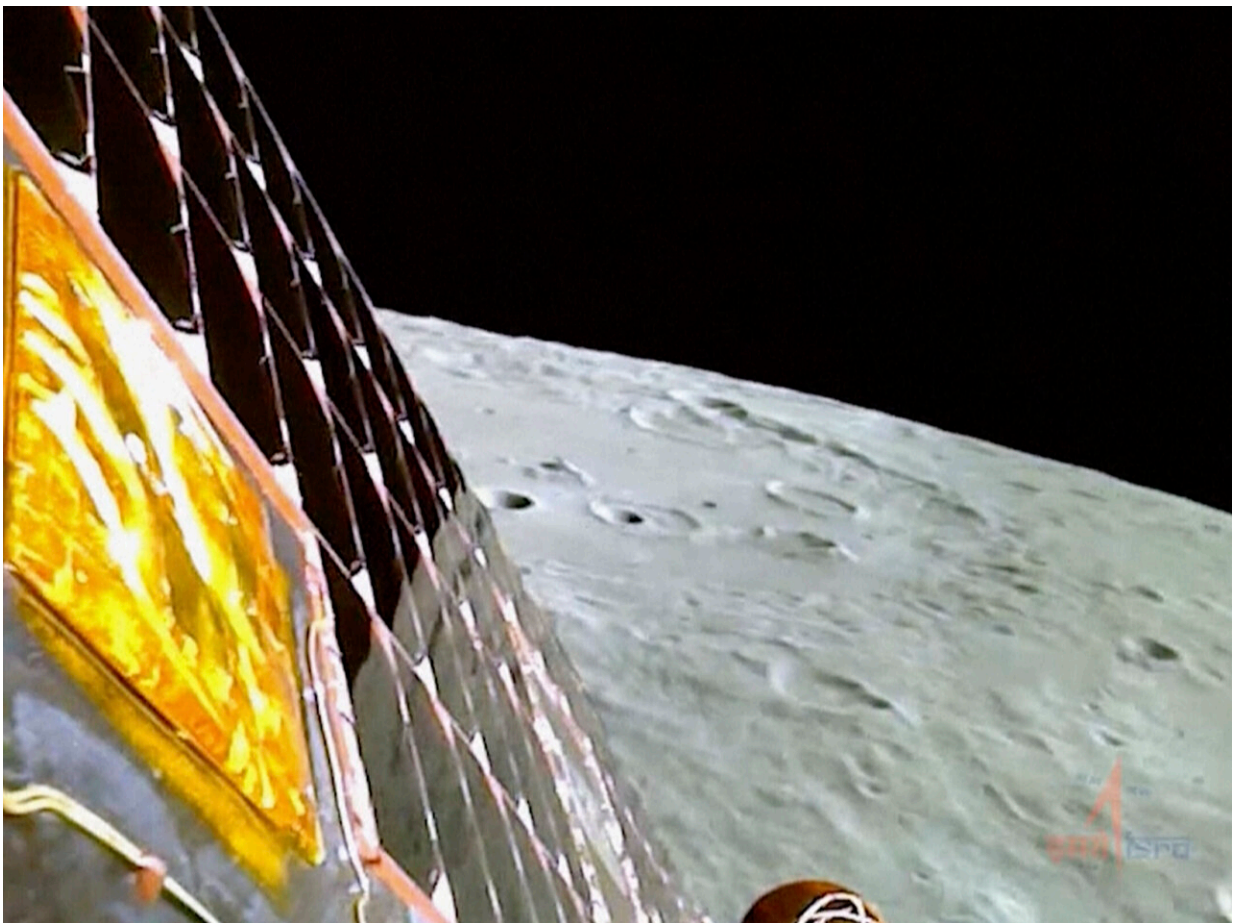


This image provided by the Indian Space Research Organisation shows a crater encountered by Chandrayaan- 3 as seen by the navigation camera on Aug. 27, 2023. India's moon rover confirmed the presence of sulfur and detected several other elements near the lunar south pole as it searches for signs of frozen water nearly a week after its historic moon landing, India's space agency said Tuesday. The lunar rover had come down a ramp from the lander of India's spacecraft after last Wednesday's touchdown near the moon's south pole. Credit: Indian Space Research Organisation via AP

The successful mission showcases India's rising standing as a technology and space powerhouse and dovetails with Prime Minister Narendra Modi's desire to project an image of an ascendant country asserting its place among the global elite.

The mission began more than a month ago at an estimated cost of \$75 million.

India's success came just days after Russia's Luna-25, which was aiming for the same lunar region, spun into an uncontrolled orbit and crashed. It had been intended to be the first successful Russian lunar landing after a gap of 47 years.



This image from video provided by the Indian Space Research Organisation shows the surface of the moon as the Chandrayaan-3 spacecraft prepares for landing on Wednesday, Aug. 23, 2023. India became the first country to land a spacecraft near the moon's south pole, which scientists believe could hold vital reserves of frozen water. Credit: ISRO via AP

Russia's head of the state-controlled space corporation Roscosmos attributed the failure to the lack of expertise because of the long break in lunar research that followed the last Soviet mission to the moon in 1976.

Active since the 1960s, India has launched satellites for itself and other countries, and successfully put one in orbit around Mars in 2014. India is planning its first mission to the International Space Station next year, in collaboration with the United States.

© 2023 The Associated Press. All rights reserved. This material may not be published, broadcast, rewritten or redistributed without permission.

Citation: India's moon rover completes its walk. Scientists analyzing data looking for signs of frozen water (2023, September 3) retrieved 29 April 2024 from <https://phys.org/news/2023-09-india-moon-rover-scientists-frozen.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--