More than 50 years after the last Apollo mission, an American spacecraft is back on the moon,**marking the first lunar landing by any private company and a step toward the hoped-for return of humans to the lunar surface.**

**The uncrewed craft**, **nicknamed** Odysseus or “Odie” **for short**, **touched down** in the moon’s **south pole** region Feb. 22 at about 6:23 p.m. amid technical and communication challenges that arose.

Intuitive Machines reported that Odysseus **tipped on** its side during landing. On Feb. 27 the company said the lander has "efficiently sent **payload** science data and **imagery** in **furtherance** of the Company’s mission objectives," but that battery power will likely run out on Feb. 28, earlier than hoped.

The arrival of such payloads – Odie contains instruments and research experiments – is seen by many as the next **giant leap** in an era of [rising interest](https://www.csmonitor.com/Science/2024/0131/Humans-and-the-moon-A-closer-look-at-an-evolving-relationship) in the moon and in commercial space exploration.

“If these companies ... have developed new technologies that can be efficiently, **inexpensively constructed**, then **the cost per flight will go down**,” says David Kring, principal scientist at the Lunar and Planetary Institute in Houston, where Intuitive Machines is headquartered. “And if **the cost per flight goes down**, then we’ll be able to do greater science for the same amount of money.”

Scientists have made huge **technological advances**. **And doors have opened for private companies to play a growing role in seeking lower-cost paths to success.**

**Failure is part of the journey, too**. **Three recent moon landing attempts** by U.S., Russian, and Japanese companies **flopped**.

The Odysseus mission is one of several that NASA tapped Intuitive Machines to do, **in a contract awarded three years ago**. The craft was launched from the Kennedy Space Center aboard a SpaceX Falcon 9 rocket on Feb. 15.

Rising “lunar economy”?

**Key goals** of this new era of exploration are to create what NASA calls a lunar economy, with projects and equipment that will “pave the way for a sustainable human presence on and around the moon,” [according](https://www.intuitivemachines.com/_files/ugd/7c27f7_51f84ee63ea744a9b7312d17fefa9606.pdf) to Intuitive Machines. This mission is part of NASA’s Commercial Lunar Payload Services (CLPS) initiative and Artemis program, which has **a long-term goal** of **establishing a permanent base** on the moon. This would help **pave the way for** a human mission to Mars.

Odysseus separated from **the launch rocket** about [an hour after takeoff](https://www.intuitivemachines.com/im-1) a week ago. **The lander ignited its engine about 18 hours into the flight and felt the moon’s gravitational pull once it covered the roughly 250,000-mile distance from Earth**. Odysseus aimed to touch down near the lunar feature called Malapert A, **a relatively flat region** in the otherwise heavily cratered area that’s visible from Earth. **Scientists are particularly interested in the little-explored south pole region and its water ice**.

“We’re **going after** scientific and technology studies that weren’t even **envisioned back in the time of Apollo**,” said Joel Kearns, an official in NASA’s Science Mission Directorate, in a pre-touchdown **press conference**.

**The aim is for the lander to function on the moon’s surface for seven days, until lunar night falls, when it will be too cold to operate.** Odysseus is a **hexagonal cylinder** with six legs, about 14 feet tall and 5 feet wide. Minus the legs, **it’s roughly the size of a British telephone booth**.

Odysseus is the most recent creation in NASA’s Commercial Lunar Payload Services program, sponsoring private companies to build lunar landers. “In CLPS, American companies used their own **engineering and manufacturing practices** instead of **adherence to** **formal and traditional NASA procedures and NASA oversight**,” Mr. Kearns said in the briefing.

scientific instruments or cargo – to the moon.

From sculpture to radio-wave test

One key mission goal is to evaluate the lunar environment with a radio receiver system and **stereo** camera system. Scientists are interested in measuring radio waves **on the far side of the moon**, the quiet side, which hasn’t been measured since 1973, says Dr. Kring.

“If the far side is, in fact, radio quiet, and we are eventually able to deploy a radio telescope, we will be able to **peer far deeper into the origin of the universe** than any telescope has done in the past,” he says.

The plan isn’t just for science experiments on the moon’s surface. The commercial payloads had hoped to **deliver a commemorative sculpture** by Jeff Koons. Some panels of the lander are **insulated** by material supplied by Columbia Sportswear to **guard against** the moon’s extreme temperatures.

Future steps may include rovers, attempts to have a craft survive the lunar night, or potentially hoppers that can **explore hard-to-reach craters**, says Mr. Greenhagen.

Perhaps the most important potential of missions like Odysseus is to **kindle** dreams for the next generation of astronauts.