

NASA Orion capsule safely blazes back from moon, aces test

December 11 2022, by Marcia Dunn



U.S. Navy divers secure NASA's Orion capsule during recovery operations after it splashed down in the Pacific off Mexico, Sunday, Dec. 11, 2022, concluding a 25-day test flight. The mission should clear the way for astronauts on the program's next lunar flyby, set for 2024. Credit: Mario Tama/Pool Photo via AP

NASA's Orion capsule made a blisteringly fast return from the moon

Sunday, parachuting into the Pacific off Mexico to conclude a test flight that should clear the way for astronauts on the next lunar flyby.

The incoming capsule hit the atmosphere at Mach 32, or 32 times the speed of sound, and endured reentry temperatures of 5,000 degrees Fahrenheit (2,760 degrees Celsius) before splashing down west of Baja California near Guadalupe Island. A Navy ship quickly moved in to recover the spacecraft and its silent occupants—three test dummies rigged with vibration sensors and radiation monitors.

NASA hailed the descent and splashdown as close to perfect, as congratulations poured in from Washington..

"I'm overwhelmed," NASA Administrator Bill Nelson said from Mission Control in Houston. "This is an extraordinary day ... It's historic because we are now going back into space—deep space—with a new generation."

The space agency needed a successful splashdown to stay on track for the next Orion flight around the moon, targeted for 2024 with four astronauts who will be revealed early next year. That would be followed by a two-person lunar landing as early as 2025 and, ultimately, a sustainable moon base. The long-term plan would be to launch a Mars expedition by the late 2030s.



A Sasquatch Team member watches as NASA's Orion capsule makes its way towards the U.S.S. Portland after being successfully secured by a NASA and U.S. Navy team in the Pacific off Mexico, Sunday, Dec. 11, 2022, concluding a 25-day test flight. The mission should clear the way for astronauts on the program's next lunar flyby, set for 2024. Credit: Caroline Brehman/Pool Photo via AP

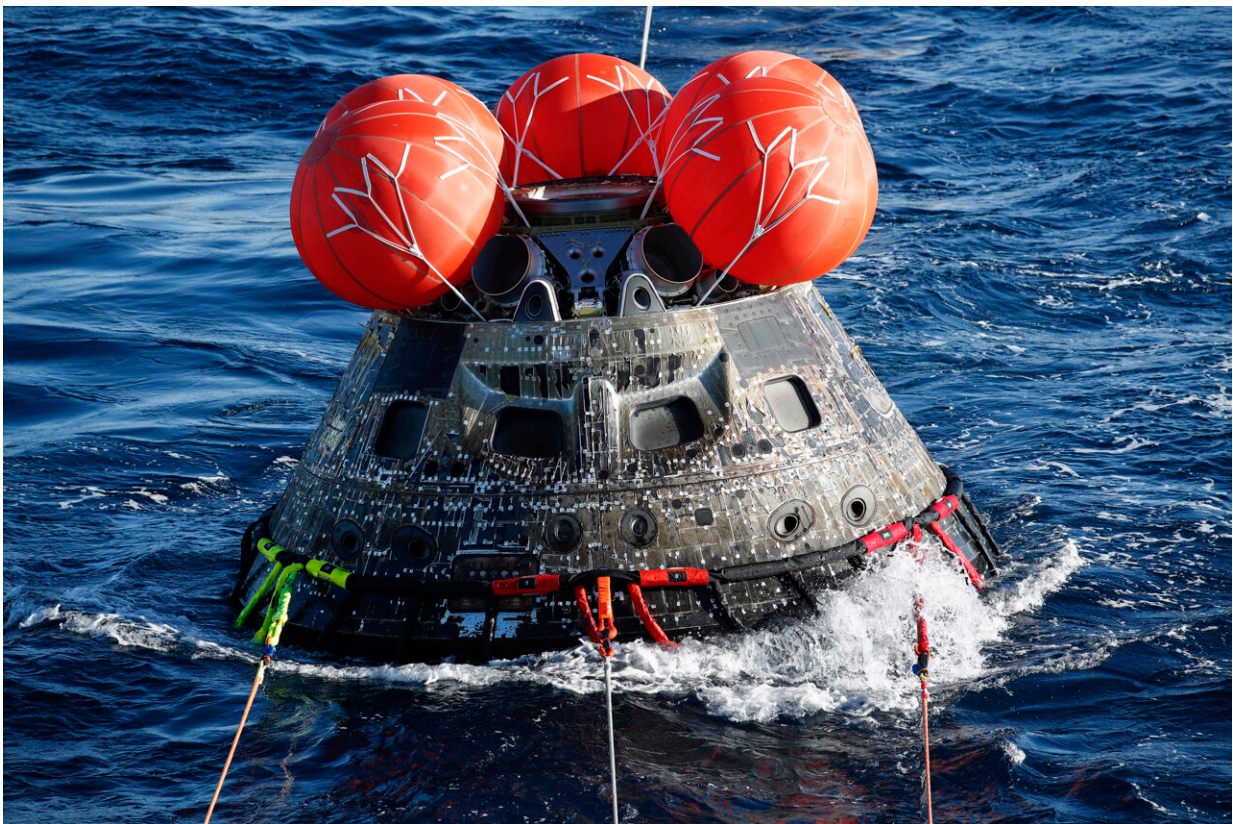
Astronauts last landed on the moon 50 years ago. After touching down on Dec. 11, 1972, Apollo 17's Eugene Cernan and Harrison Schmitt spent three days exploring the valley of Taurus-Littrow, the longest stay of the Apollo era. They were the last of the 12 moonwalkers.

Orion was the first capsule to visit the moon since then, launching on NASA's [new mega moon rocket from Kennedy Space Center on Nov. 16](#)

. It was the first flight of NASA's new Artemis moon program, named after Apollo's mythological twin sister.

"From Tranquility Base to Taurus-Littrow to the tranquil waters of the Pacific, the latest chapter of NASA's journey to the moon comes to a close. Orion back on Earth," announced Mission Control commentator Rob Navias.

While no one was on the \$4 billion test flight, NASA managers were thrilled to pull off the dress rehearsal, especially after so many years of flight delays and busted budgets. Fuel leaks and hurricanes conspired for additional postponements in late summer and fall.



NASA's Orion capsule makes its way toward the U.S.S. Portland after being successfully secured by a NASA and U.S. Navy team in the Pacific off Mexico,

Sunday, Dec. 11, 2022, concluding a 25-day test flight. The mission should clear the way for astronauts on the program's next lunar flyby, set for 2024. Credit: Caroline Brehman/Pool Photo via AP

In an Apollo throwback, NASA held a splashdown party at Houston's Johnson Space Center on Sunday, with employees and their families gathering to watch the broadcast of Orion's homecoming. Next door, the visitor center threw a bash for the public.

Getting Orion back intact after the 25-day flight was NASA's top objective. With a return speed of 25,000 mph (40,000 kph)—considerably faster than coming in from low-Earth orbit—the capsule used a new, advanced heat shield never tested before in spaceflight. To reduce the gravity or G loads, it dipped into the atmosphere and briefly skipped out, also helping to pinpoint the splashdown area.

All that unfolded in spectacular fashion, officials noted, allowing for Orion's safe return.

"I don't think any one of us could have imagined a mission this successful," said mission manager Mike Sarafin.



NASA's Orion capsule makes its way toward the U.S.S. Portland after being successfully secured by a NASA and U.S. Navy team in the Pacific off Mexico, Sunday, Dec. 11, 2022, concluding a 25-day test flight. The mission should clear the way for astronauts on the program's next lunar flyby, set for 2024. Credit: Caroline Brehman/Pool Photo via AP

Further inspections will be conducted once Orion is back at Kennedy by month's end. If the capsule checks find nothing amiss, NASA will announce the first lunar crew amid considerable hoopla in early 2023, picking from among the 42 active U.S. astronauts stationed at Houston's Johnson Space Center.

"People are anxious, we know that," Vanessa Wyche, Johnson's director, told reporters. Added Nelson: "The American people, just like (with) the

original seven astronauts in the Mercury days, are going to want to know about these astronauts."

The capsule splashed down more than 300 miles (482 kilometers) south of the original target zone. Forecasts calling for choppy seas and high wind off the Southern California coast prompted NASA to switch the location.

Orion logged 1.4 million miles (2.25 million kilometers) as it zoomed to the moon and then entered a [wide, swooping orbit for nearly a week](#) before heading home.



Video feeds are displayed in the U.S.S. Portland command center during recovery operations after NASA's Orion Capsule splashed down in the Pacific off Mexico, Sunday, Dec. 11, 2022. NASA's Orion capsule made a blisteringly

fast return from the moon Sunday, to conclude a test flight that should clear the way for astronauts on the next lunar flyby. Credit: Caroline Brehman/Pool Photo via AP



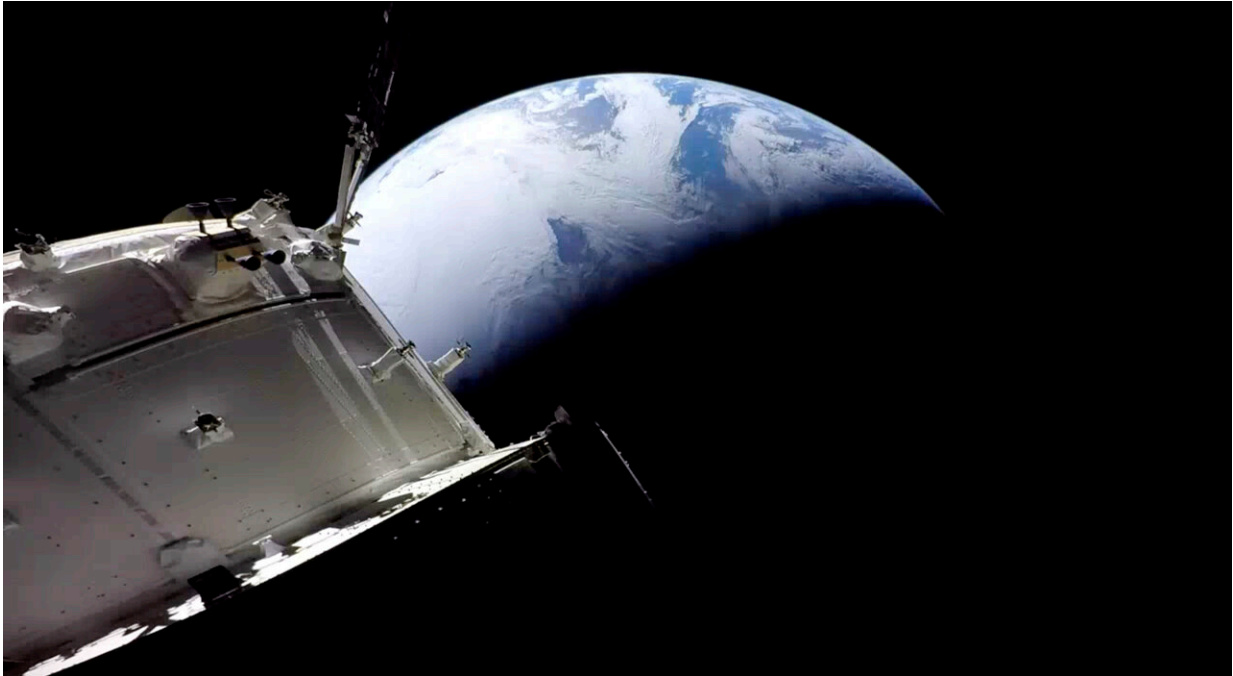
Video feeds are displayed in the U.S.S. Portland command center during recovery operations after NASA's Orion Capsule splashed down in the Pacific off Mexico, Sunday, Dec. 11, 2022. NASA's Orion capsule made a blisteringly fast return from the moon Sunday, to conclude a test flight that should clear the way for astronauts on the next lunar flyby. Credit: Mario Tama/Pool Photo via AP



A U.S. Navy diver prepares to depart the U.S.S. Portland in a small vessel as part of recovery operations before NASA's Orion capsule splashed down in the Pacific off Mexico, Sunday, Dec. 11, 2022, to conclude a dramatic 25-day test flight. The mission should clear the way for astronauts on the program's next lunar flyby, set for 2024. Credit: Mario Tama/Pool Photo via AP



NASA's Orion capsule splashes down Sunday, Dec. 11, 2022, to conclude a dramatic 25-day test flight, as seen from aboard the U.S.S. Portland in the Pacific off Mexico. The mission should clear the way for astronauts on the program's next lunar flyby, set for 2024. Credit: Mario Tama/Pool Photo via AP



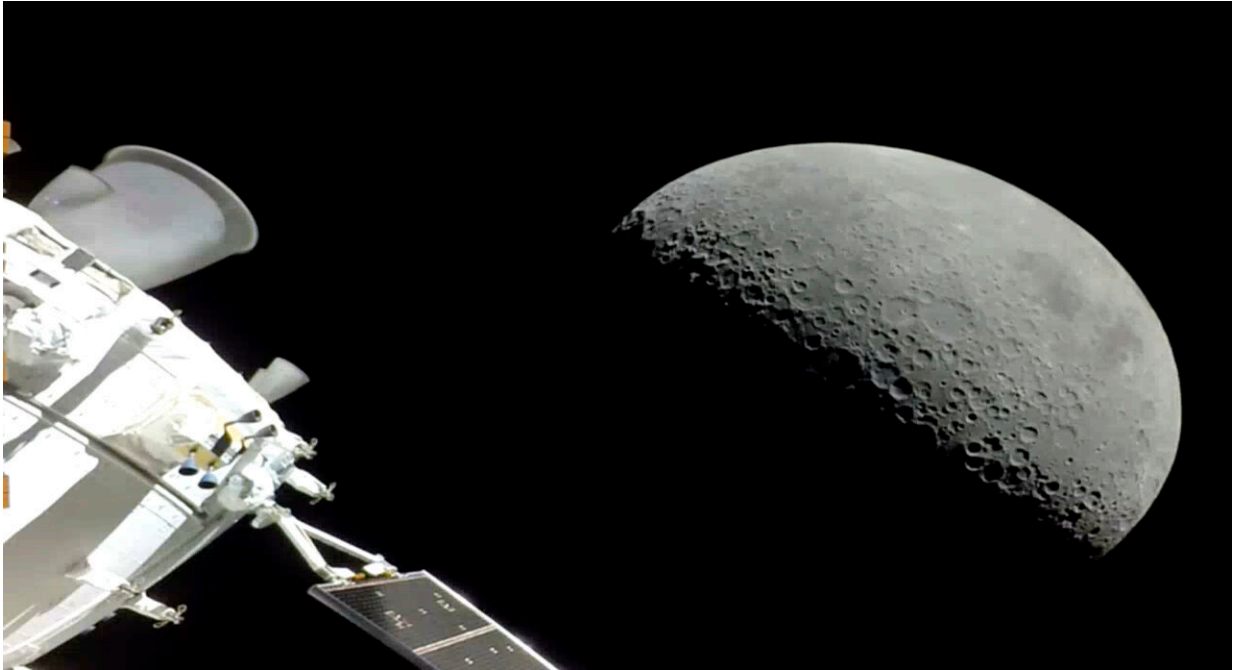
This image provided by NASA shows the Orion spacecraft approaching Earth on Sunday, Dec. 11, 2022, as it neared the end of its three-week test flight to the moon. Credit: NASA via AP



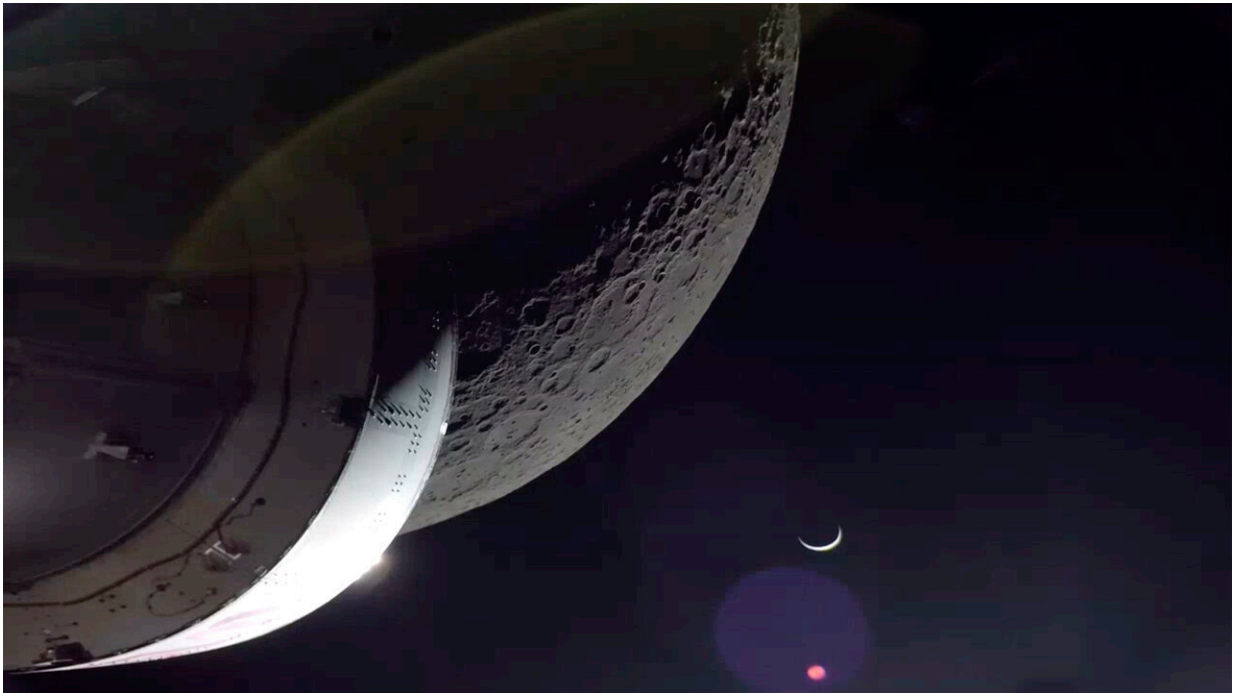
This image provided by NASA shows the Orion spacecraft approaching Earth on Sunday, Dec. 11, 2022, as it neared the end of its three-week test flight to the moon. Credit: NASA via AP



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NASA's Orion spacecraft flew past the moon on Monday, December 5, 2022. The crew capsule and its test dummies will aim for a Pacific Ocean splashdown on Sunday, December 11, 2022, off the coast of San Diego after a three-week test flight, setting the stage for astronauts on the next flight in a couple years. Credit: NASA via AP



NASA's Orion spacecraft beamed back close-up photos of the moon and Earth on Monday, Dec. 5, 2022. The crew capsule and its test dummies will aim for a Pacific Ocean splashdown on Sunday, Dec. 11, 2022, off the coast of San Diego after a three-week test flight, setting the stage for astronauts on the next flight in a couple years. Credit: NASA via AP

It came within 80 miles (130 kilometers) of the moon twice. At its farthest, the capsule was more than 268,000 miles (430,000 kilometers) from Earth.

Orion beamed back stunning photos of not only the gray, pitted moon, but also the home planet. As a parting shot, the capsule revealed a crescent Earth—Earthrise—that left the mission team speechless.

Nottingham Trent University astronomer Daniel Brown said the flight's many accomplishments illustrate NASA's capability to put astronauts on

the next Artemis moonshot.

"This was the nail-biting end of an amazing and important journey for NASA's Orion spacecraft," Brown said in a statement from England.

The moon has never been hotter. Just hours earlier Sunday, a spacecraft rocketed toward the moon from Cape Canaveral. The lunar lander belongs to ispace, a Tokyo company intent on developing an economy up there. Two U.S. companies, meanwhile, have lunar landers launching early next year.

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