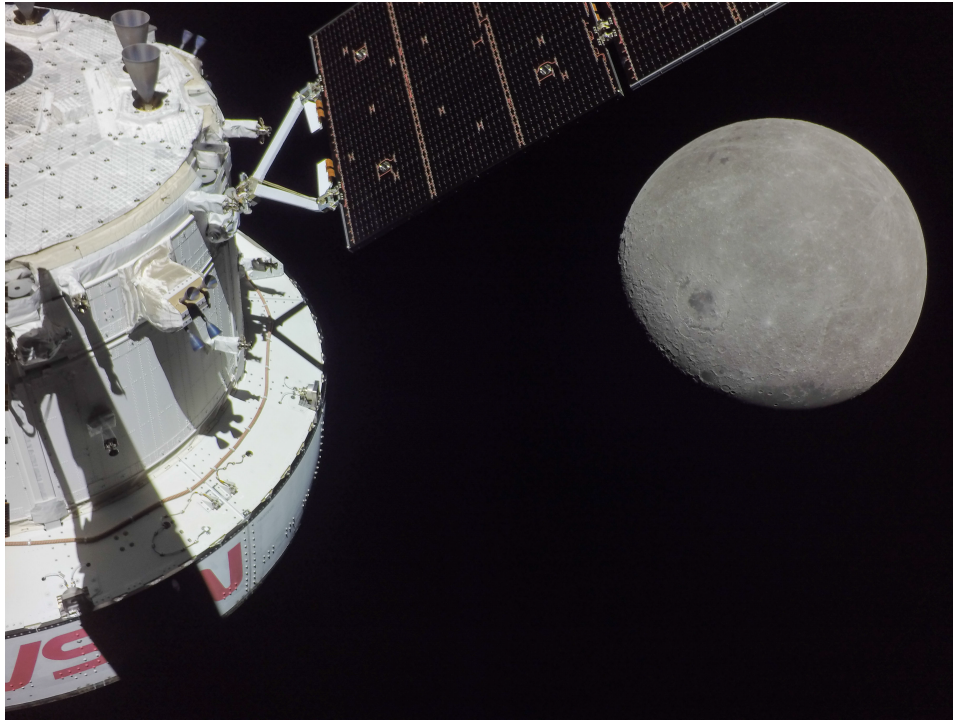


# The Washington Post

## Opinion | Artemis says, to the moon! But it might simply prove our human limits.

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[AddFollo](#)

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A portion of the far side of the moon as seen beyond the Orion spacecraft on Monday, the sixth day of the Artemis I mission.(NASA Handout/EPA-EFE/Shutterstock)

### CORRECTION

A previous version of this column incorrectly said the Apollo 17 astronauts spent 12 days on the moon in 1972. Their mission lasted 12 days, including three on the moon. This version has been corrected.

The last Apollo astronauts lifted away from the moon after a [three-day campout](#) in 1972. They couldn't survive on the lunar surface long, so there had been little for them to do. Once they had collected rocks, [driven a car](#), [bounded](#) like bunnies and [smacked a golf ball](#), NASA was left with a very exclusive ride to nowhere.

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Stamping another world with a human boot print was a staggering feat of engineering and audacity. But a sense of unfinished business hung over the astronauts' departure: We'll be back, NASA seemed to say, once we figure out how to linger, and why.

The half-century since has not been wasted. Building and maintaining a space station in low orbit have made a far more distant moon station plausible. And now comes the recent launch of the [Artemis](#) mission: NASA's [Step 1](#) in humanity's return to the moon.

Huge advances in computing and artificial intelligence have brought the operation of a permanent lunar base within reach. Entirely robotic, this first Artemis flight will perform tests and surveillance to prepare for an eventual human outpost — probably not in 10 years but perhaps within 25.

As often happens in the realm of human spaceflight, Artemis is ungainly, [controversial](#), compromised and excessively expensive. It is also exciting: the long-delayed next chapter of the story begun by Apollo.

Fans of Artemis promote the mission as a platform for colonizing Mars. Then, to infinity and beyond. Yet it's possible Artemis might prove to be the limit of human space travel — though not the end of exploration.

The case for human space travel has become dominated by darkness. The naive optimism of “Star Trek” glossed over physics to imagine human ambassadors to faraway galaxies. Today's leading proponents are pessimists, picturing [grim lifeboats](#) loaded with refugees from a dying Earth. Rocket-ship billionaires foretell a future so hellish that the airless desert of Mars seems beckoning.

Artemis is intended to learn the lessons necessary for human survival in space, with the subtext that those lessons will be encouraging. But it is at least as likely that extended stays on the moon will reveal just how unsuited humans are for long sojourns — or even lifetimes — beyond Earth. Organisms evolve to thrive in particular environments. The human body is exquisitely tuned to [one G](#) of gravity and a [magnetic field](#), neither of which is present on the moon or Mars. Even in the relatively friendly realm of low orbit, human bodies suffer rapid deterioration. One study of preserved blood samples from space shuttle astronauts found [potentially deadly gene mutations](#) in every case. The astronauts had spent an average of just 12 days away from Earth. Other experiments [have shown](#) that traveling beyond Earth [causes bone loss](#), damages vision, [alters fluid density](#) around the brain and so on. Some scientists are [highly skeptical](#) that a healthy human fetus could develop in the radiation storms of space, which challenges the idea of colonizing Mars.

*[\[David Von Drehle: The years and billions spent on the James Webb telescope? Worth it.\]](#)*

Though Artemis voyagers will test the limits of human flesh in nonhuman places, robotic technology will continue to advance. Current missions give a glimmer of the miraculous future of machines in space. The James Webb Space Telescope, deployed at a distance [four times more remote than the moon](#), has [only begun to dazzle us](#) with its infrared eye. The Mars rover Perseverance has [found](#) intriguing evidence of organic molecules — possible signs of long-ago life — in the rocks it processes through its onboard laboratory. Working tirelessly, the rover has time to share [high-definition images](#) of the Martian landscape.

Thus, two powerful, opposing trend lines might define the Artemis era. On one hand, the lunar experiment might reveal additional ways in which the human animal is unsuited to life outside its natural habitat. Just as fish do not thrive in open air and sparrows don't dwell in caves, humans could prove to be exclusively adapted to life within Earth's [ionosphere](#). While we are finding our human limits, robotics will follow the opposite trend. Rovers will add touch and sound and scent to their senses; they will gain the power to come and go between Earth and space; their ability to guide themselves over distant worlds and react to their own discoveries will increase. Artemis's ultimate gift might be a heightened appreciation of the lifeboat we already occupy, and of the mighty creativity of human intelligence. To accept that Earth is our home need not mean that it is our prison.

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November 25, 2022

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November 25, 2022

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November 25, 2022