

Subject: SCIENCE: Will private spaceflight actually happen this time?
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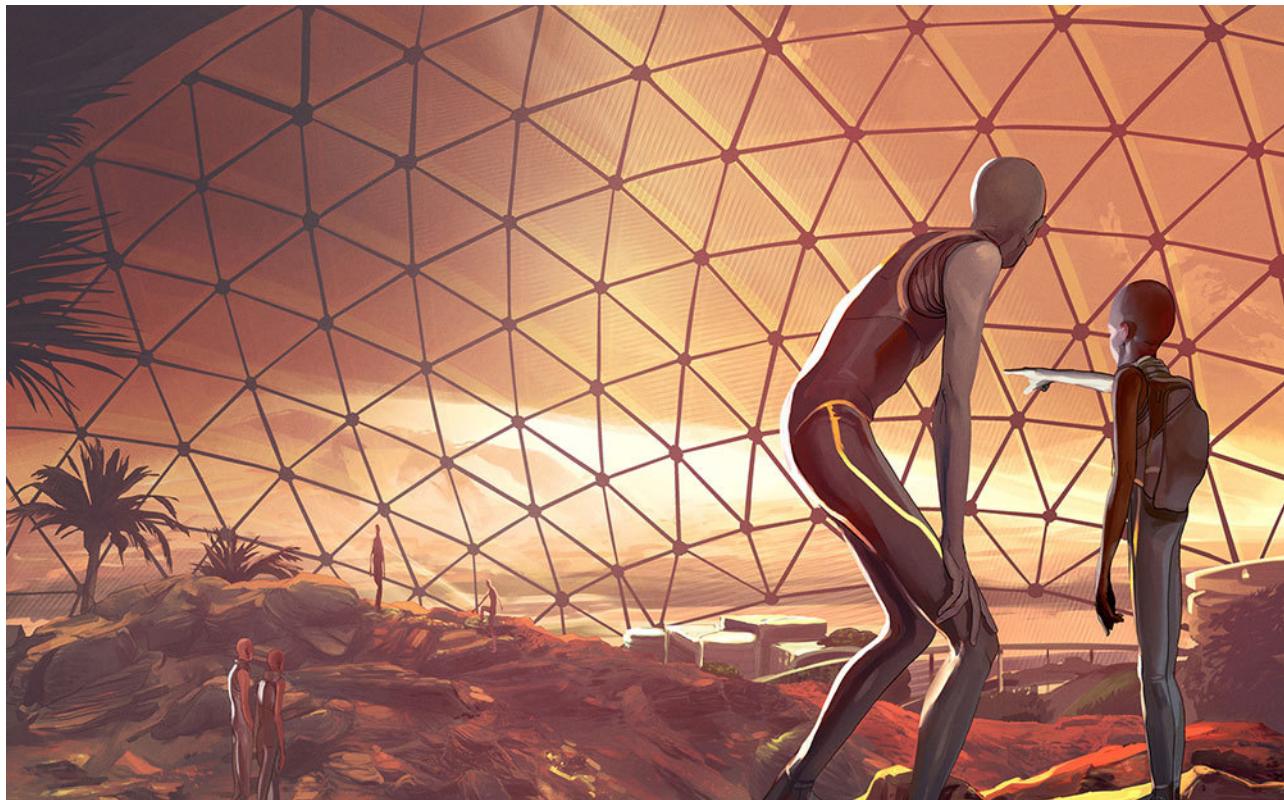
SCIENCE AND ENVIRONMENT

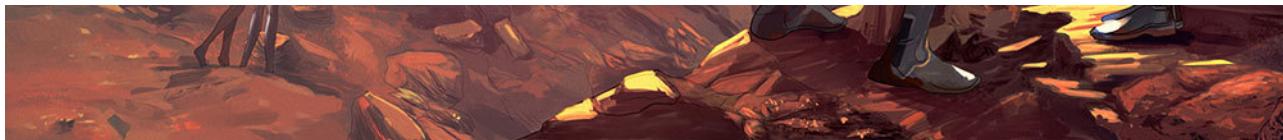
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THE BIG QUESTION: **WILL PRIVATE SPACEFLIGHT ACTUALLY BECOME A THING?**

Wednesday, February 3, 2021





OWEN FREEMAN

By **Victoria Jaggard**, SCIENCE executive editor

It's really easy to get jaded covering human spaceflight. I remember the thrill of looking at SpaceShipOne, the first privately funded vehicle to fly humans into space, after it took its place of honor at the National Air and Space Museum here in D.C. When it made that historic flight in 2004, news outlets were buzzing with hopeful headlines about a new era of commercial spaceflight.

Seats on future flights were being sold. Spaceports were being built. Dreams of moon and Mars bases were revitalized.

Seventeen years later, I'm not living on the moon, but I am experiencing *déjà vu*. This week, SpaceX announced that it will soon be flying the first all-civilian mission to orbit Earth. Piloted by wealthy tech entrepreneur **Jared Isaacman**, the flight is slated to launch later this year and will include additional seats for a frontline health-care worker, a lottery winner, and a contest winner—none of whom will necessarily be trained astronauts. The news comes on the heels of a separate announcement by Texas-based company Axiom Space that they will be using a SpaceX vehicle to fly private citizens to the International Space Station in early 2022.

“This is just the first of several Axiom Space crews whose private missions to the International Space Station will truly inaugurate an expansive future for humans in space,” Axiom Space president **Michael Suffredini** says in a press release. Where have I heard that before?

To be fair, the SpaceX Crew Dragon is now a proven spacefaring vehicle, with multiple return trips to the ISS under its mechanical belt. On the flip side, the cost of a seat is nothing to sneeze at, with each passenger on the Axiom ride handing over \$55 million for the privilege. Also this week, another prototype of SpaceX’s next big rocket, dubbed Starship, exploded after a high-altitude test flight. I want to believe in our *Star Trek* future, I really do, and the latest round of commercial flight news is encouraging. But I’ve been burned enough by now to take each new fanfare with a Jupiter-size grain of salt.

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TODAY IN A MINUTE

A jump start: The race to protect the world from COVID-19 has pushed forward technology that could lead to new vaccines against viruses from seasonal influenza to HIV. Future messenger RNA vaccines could tackle multiple viruses with a single shot or provide protection against difficult diseases, [Jillian Kramer](#) reports for Nat Geo. “The technology has been proven to be safe and effective, and everybody on planet Earth knows it, except for the anti-vaxxers,” says biologist and biotech entrepreneur **Derrick Rossi**.

The McPlant burger: McDonalds is testing its pea- and rice-protein burger in Denmark and Sweden, and results will be evaluated this spring for a possible broader rollout. [The Verge](#) reports that the burger, cooked on the same grill as beef offerings, is intended for “flexitarians”—people who are loosely vegetarian but still eat some meat.

Young Explorers: The water from her Maine high school’s drinking fountains contained high levels of lead. That inspired teenager **Amara Ifeji** to begin studying the use of fungi and plants to remove heavy metals from water, [winning first place in a state science competition](#). Ifeji, 19, who also works on racial justice issues, is one of 24 budding trailblazers worldwide chosen in the latest class of [National Geographic Young Explorers](#). “This is the work I want to dedicate my life to,” she told the [Portland Press-Herald](#).

Learn more about the [Young Explorers](#) and follow their stories at #GenGeo

INSTAGRAM PHOTO OF THE DAY

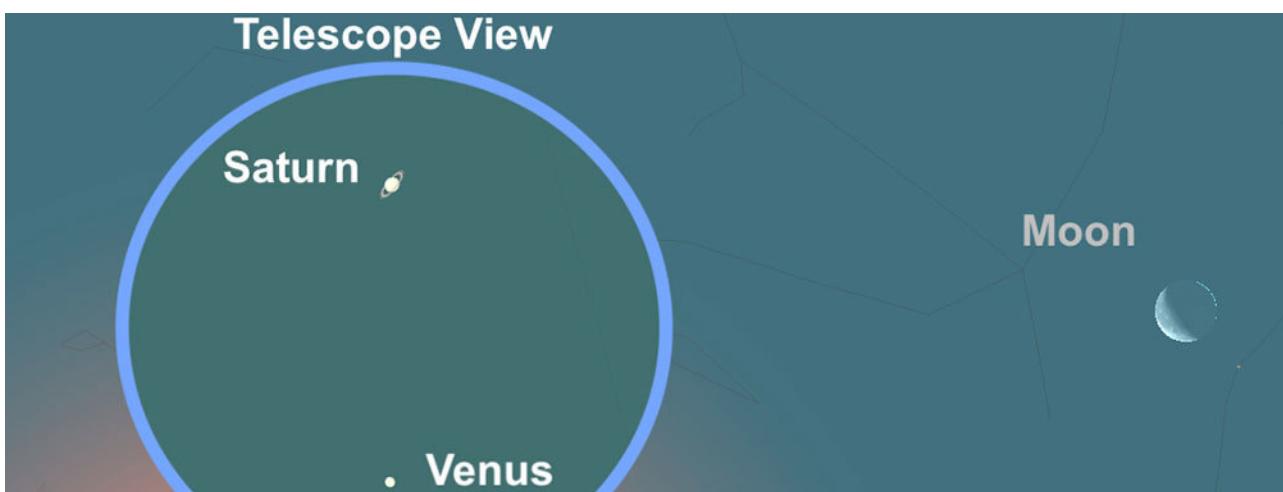


PHOTOGRAPH BY MICHAEL YAMASHITA, [@YAMASHITAPHOTO](#)

Coal, still: China has pledged to make its nation carbon neutral by 2060, but it's currently the world's largest producer and consumer of coal. Pictured above, in northern Liaoning Province, steam engines built in the 1980s belch black smoke as they haul coal from pit mines dug into the arid landscape.

Explainer: A brief introduction to fossil fuels

THE NIGHT SKIES



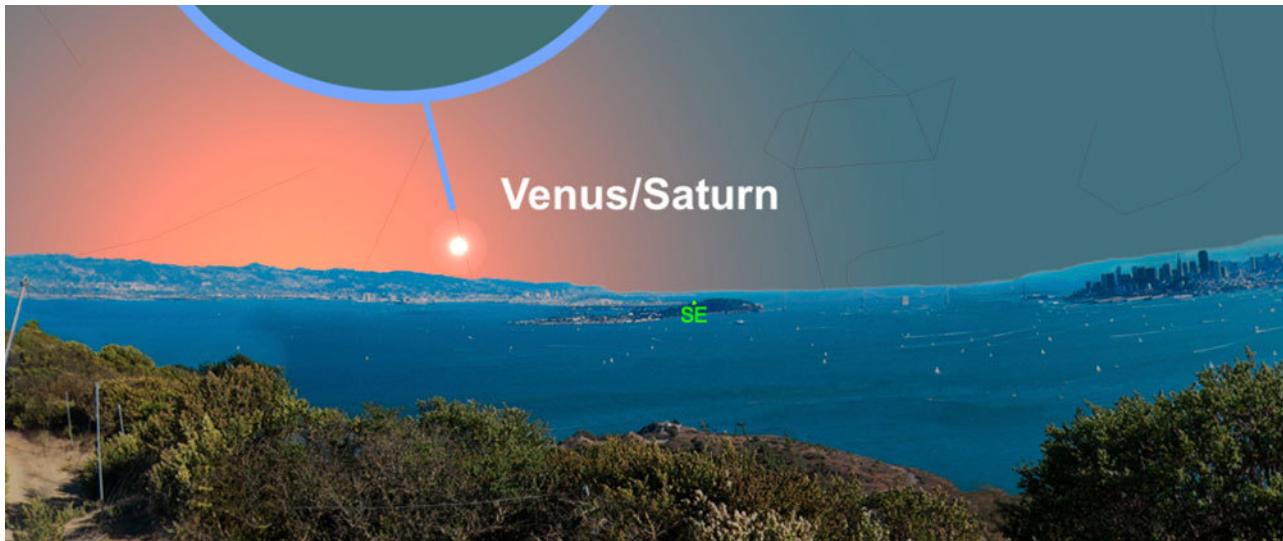


ILLUSTRATION BY ANDREW FAZEKAS

Planetary moves: This week, Jupiter and Saturn will hover over the low southeast horizon in the early morning skies. Venus will join the ringed planet on Saturday as it sinks closer to the sun. Both will easily fit in the same field of view when seen through binoculars or a small telescope. Because the pair will be so close to the rising sun, the trick will be catch them about half an hour before local sunrise. Southernly latitudes will be better positioned, as the two worlds will be higher in the sky and farther from the glow of the morning light. Look for the crescent moon to their upper right, near the orange star Antares in the Scorpius constellation. — Andrew Fazekas

THE BIG TAKEAWAY





ILLUSTRATION BY LEONARDO SANTAMARIA

Owning our disasters: Hundreds of concurrent California wildfires. Hurricanes that jump faster in intensity than before. Temperatures that hit 130 degrees Fahrenheit. “I’ve been reporting on climate change for almost two decades, and I’ve come to think that we need a new term to describe these events,” writer Elizabeth Kolbert says. “Perhaps we should call them ‘man-made natural disasters.’” And COVID-19 is just the leading edge of more frequent outbreaks of novel diseases as we destroy other animals’ habitats and move species around the world, Kolbert writes in the latest issue of *National Geographic*.

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IN A FEW WORDS

“

I think [wetlands have] suffered for a long time from the perception as muddy, buggy areas that didn’t have a lot of value. We’ve shown recently you’re very hard pressed to find an ecosystem that’s more productive, that

has all the environmental and climate
benefits rolled into one.

Jennifer Howard

Senior Director, Conservation International's Blue Carbon
Program

From [The world's wetlands are slipping away](#)

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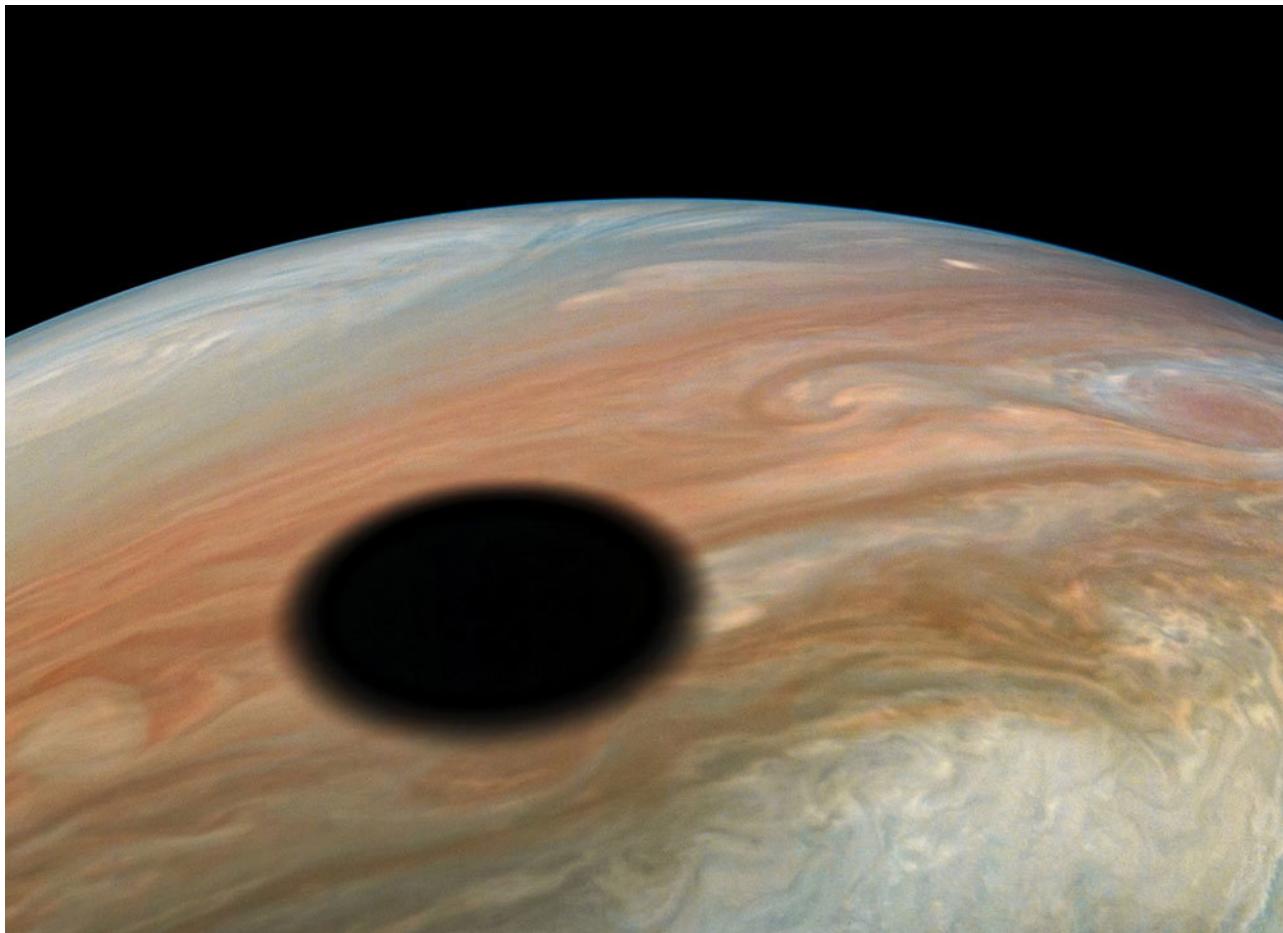
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THE LAST GLIMPSE



PHOTOGRAPH BY NASA/JPL-CALTECH/SWRI/MSSS, KEVIN M. GILL

Juno's next mission: NASA's solar-powered explorer was built to orbit Jupiter. But after five years circling our biggest planet, the Juno mission is expanding. The orbiter will spend the next four years exploring three of Jupiter's alien moons, including one that scientists think is among our best bets for finding life beyond Earth. "It's so rare to get a mission to the outer solar system, and it's just amazing that we can take advantage of this spacecraft that's there," **Cynthia Phillips**, of NASA's Jet Propulsion Laboratory, tells Nat Geo. (*Pictured above is the shadow of Io, one of three moons that the Juno mission will examine.*)

READ ON

This newsletter has been curated and edited by David Beard, with photo selections by Jen Tse. Kimberly Pecoraro and Gretchen Ortega helped produce this newsletter. Have an idea or a link? We'd love to hear from you at david.beard@natgeo.com. Thanks for reading, and have a good week ahead.

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