NASA considers evacuating ailing crew member from International Space Station

Someone on the International Space Station suffered an unspecified “medical situation” Wednesday, prompting the postponement of a planned spacewalk and raising the possibility of an early return for a portion of the lab’s seven-person crew, NASA said in a statement.

NASA has never ordered a medical evacuation from space before, but the option has always been available at the International Space Station with lifeboats ready for activation.

The space agency announced the spacewalk postponement Wednesday afternoon due to a “medical concern” with a member of the space station’s crew. NASA officials declined to identify the crew member or release further details about their condition, citing medical privacy restrictions.

A late-night update

It is rare, but not unprecedented, for NASA to postpone a spacewalk because of a medical issue. It last happened in 2021, when an astronaut was unable to perform a spacewalk due to a pinched nerve. NASA initially said managers would reschedule Thursday’s planned excursion for another date.

But the situation on the ISS appeared more serious after a second statement was released by NASA late Wednesday night. NASA confirmed the medical issue involved a single crew member and said the person was stable. Then, NASA said managers were considering bringing home the ailing crew member on a SpaceX

Crew Dragon capsule.

The Dragon spacecraft docked at the ISS launched August 1 with NASA astronauts Zena Cardman and Mike Fincke, Japanese astronaut Kimiya Yui, and Russian cosmonaut Oleg Platonov. This mission, designated Crew-11, was slated to end with the crew's undocking and return to Earth around February 20.

"Safely conducting our missions is our highest priority, and we are actively evaluating all options, including the possibility of an earlier end to Crew-11's mission," NASA said. "These are the situations NASA and our partners train for and prepare to execute safely. We will provide further updates within the next 24 hours."

https://arstechnica.com/space/2026/01/nasa-postpones-space-station-spacewalk-due-to-crew-members-medical-concern/

New battery idea gets lots of power out of unusual sulfur chemistry

When the battery starts discharging, the sulfur at the cathode starts losing electrons and forming sulfur tetrachloride (SCl_4), using chloride it stole from the electrolyte. As the electrons flow into the anode, they combine with the sodium, which plates onto the aluminum, forming a layer of sodium metal. Obviously, this wouldn't work with an aqueous electrolyte, given how powerfully sodium reacts with water.

High capacity

To form a working battery, the researchers separated the two electrodes using a glass fiber material. They also added a porous carbon material to the cathode to keep the sulfur tetrachloride from diffusing into the electrolyte. They used various techniques to confirm that sodium was being deposited on the aluminum and that the reaction at the cathode was occurring via sulfur dichloride intermediates. They also determined that sodium chloride was a poor source of sodium ions, as it tended to precipitate out onto some of the solid materials in the battery.

The battery was also fairly stable, surviving 1,400 cycles before suffering significant capacity decay. Higher charging rates caused capacity to decay more quickly, but the battery does a great job of holding charge when not in use, maintaining over 95 percent of its charge, even when idled for 400 days.

While the researchers provide some capacity-per-weight measurements, they don’t do so for a complete battery, focusing instead on portions of the battery, such as the sulfur or the total electrode mass.

But with both electrodes considered, the energy density can reach over 2,000 Watt-hours per kilogram. While that will undoubtedly drop with the total mass of the battery, it’s difficult to imagine that it wouldn’t outperform existing sodium-sulfur or sodium-ion batteries.

Beyond the capacity, the big benefit of the proposed system appears to be its price. Given the raw materials, the researchers estimate that their cost is roughly $5 per kilowatt-hour of capacity, which is less than a tenth of the cost of current sodium batteries.

Again, there’s no guarantee that this work can be scaled up

for manufacturing in a way that keeps it competitive with current technologies. Still, if materials used in existing battery technologies become expensive, it’s reassuring to have other options to explore.

Nature, 2026. DOI: 10.1038/s41586-025-09867-2 (About DOIs).

https://arstechnica.com/science/2026/01/new-battery-idea-gets-lots-of-power-out-of-unusual-sulfur-chemistry/

We have a fossil closer to our split with Neanderthals and Denisovans

The Casablanca fossils are about the same age as hominin fossils from Spain, which belong to a species called *Homo antecessor.* This species has been suggested to be a likely ancestor of Neanderthals and Denisovans. Overall, it looks like the fossils from Casablanca are a North African counterpart to *Homo antecessor*, with the Spanish hominins eventually leading to Neanderthals and the North African ones eventually leading to us.

Both groups share some features in their teeth and lower jaws, but they’re also different in some important ways. The teeth and chins in particular share some older features with *Homo erectus.* But the jaws have more newfangled features in the places where chewing muscles once attached to the bone—features that Neanderthals and our species share. On the

other hand, the teeth are missing some other relatively recent features that would later help define Neanderthals (and were already beginning to show up in *Homo antecessor*).

Altogether, it looks like the *Homo erectus* populations and the Neanderthals and Denisovans had been separated for a while by the time the hominins at Grotte à Hominidés lived. But not *that* long. These hominins were probably part of a generation that was fairly close to that big split, near the base of our branch of the hominin family tree.

Here’s looking at you, hominin

Based on ancient DNA, it looks like Neanderthals and Denisovans started evolving into two separate species sometime between 470,000 and 430,000 years ago. Meanwhile, our branch would eventually become recognizable as *us* sometime around 300,000 years ago, or possibly earlier. At various times and places, all three species would eventually come back together to mingle and swap DNA, leaving traces of those interactions buried deep in each other’s genomes.

And 773,000 years after a predator dragged the remains of a few unfortunate hominins into its den in northern Africa, those hominins’ distant descendants would unearth the gnawed, broken bones and begin piecing together the story.

Nature, 2025 DOI: 10.1038/s41586-025-09914-y (About DOIs).

https://arstechnica.com/science/2026/01/weve-got-a-fossil-closer-to-our-split-with-neanderthals-and-denisovans/

Here are the launches and landings we’re most excited about in 2026

Last year delivered doses of drama and excitement in the space business, with a record number of launches, breathtaking vistas of other worlds, and a multitude of breakthroughs and setbacks. 2026 is shaping up to be another thrilling year in the cosmos.

For the first time in more than 54 years, astronauts are training to travel to the vicinity of the Moon, perhaps within the next couple of months. NASA, SpaceX, Blue Origin, and other companies are poised to take major steps toward actually landing humans on the Moon, perhaps within a few years.

New rockets are slated to debut in 2026, and scientists hope to open new windows on the Universe. Here, we list the most anticipated space missions scheduled for this year, ranked according to our own anticipation for them. We also assess the chances of these missions actually happening in the next 12 months. Unless specified, we don’t assess the chances of a successful outcome.

1. Artemis II

Final preparations for the Artemis II mission are well underway at NASA’s Kennedy Space Center in Florida, with the Space Launch System rocket and Orion spacecraft fully integrated inside the Vehicle Assembly Building. Within a couple of weeks, the SLS rocket could roll to Launch Complex 39B for a countdown dress rehearsal. Then, perhaps in

February, the Artemis II mission is scheduled to depart Florida's Space Coast on a 10-day flight that will carry astronauts Reid Wiseman, Victor Glover, Christina Koch, and Jeremy Hansen around the far side of the Moon and back to Earth. This will be the first crew flight on the SLS rocket and Orion capsule. Even if delays prevent a launch in February, Artemis II is well-positioned to fly by spring or summer. **Chance of Artemis II happening in 2026: 90 percent.**

https://arstechnica.com/space/2026/01/here-are-the-launches-and-landings-were-most-excited-about-in-2026/

Ørsted seeks injunction against US government over project freeze

Ørsted is seeking a court injunction against the Trump administration's decision to suspend its work on a major wind farm project off the US northeast coast.

In the latest salvo between the US government and the offshore wind industry, the Danish company filed a legal challenge against the suspension in the US District Court for the District of Columbia on Thursday.

In a statement, Ørsted—the world's largest offshore wind developer that is 50 percent owned by the Danish state—and its joint venture partner Skyborn Renewables, a unit of BlackRock's Global Infrastructure Partners, said the US government's order to suspend the lease on its Revolution Wind project was a violation of applicable law.

Read full article

Comments

https://arstechnica.com/tech-policy/2026/01/orsted-seeks-injunction-against-us-government-over-project-freeze/

NASA’s science budget won’t be a train wreck after all

In June, the White House released a budget proposal for fiscal year 2026 that slashed funding for NASA’s science programs by nearly 50 percent. Then, in July, the Trump administration began telling the leaders of dozens of space science missions to prepare “closeout” plans for their spacecraft.

Things looked pretty grim for a while, but then Congress stepped in. Congress, of course, sets the federal government’s budget. In many ways, Congress abdicated authority to the Trump administration last year. But not so, it turns out, with federal spending.

Throughout the summer and fall, as the White House and Congress wrangled over various issues, lawmakers made it clear they intended to fund most of NASA’s science portfolio. Preliminary efforts to shut down active missions were put on hold.

Read full article

Comments

https://arstechnica.com/space/2026/01/nasas-science-budget-wont-be-a-train-wreck-after-all/

Under anti-vaccine RFK Jr., CDC slashes childhood vaccine schedule

Under anti-vaccine Health Secretary Robert F. Kennedy Jr., federal health officials on Monday announced a sweeping and unprecedented overhaul of federal vaccine recommendations, abruptly paring down recommended immunizations for children from 17 to 11.

Officials claimed the rationale for the change was to align US vaccine recommendations more closely with those of other high-income countries, namely Denmark, a small, far less diverse country of around 6 million people (smaller than the population of New York City) that has universal health care. The officials also claim the change is necessary to address the decline in public trust in vaccinations, which has been driven by anti-vaccine activists, including Kennedy.

“This decision protects children, respects families, and rebuilds trust in public health,” Kennedy said in a statement.

Read full article

Comments

https://arstechnica.com/health/2026/01/under-anti-vaccine-rfk-jr-cdc-slashes-childhood-vaccine-schedule/

Researchers spot Saturn-sized planet in the “Einstein desert”

Most of the exoplanets we’ve discovered have been in relatively tight orbits around their host stars, allowing us to track them as they repeatedly loop around them. But we’ve also discovered a handful of planets through a phenomenon that’s called microlensing. This occurs when a planet passes between the line of sight between Earth and another star, creating a gravitational lens that distorts the star, causing it to briefly brighten.

The key thing about microlensing compared to other methods of finding planets is that the lensing planet can be nearly *anywhere* on the line between the star and Earth. So, in many cases, these events are driven by what are called rogue planets: those that aren’t part of any exosolar system at all, but they drift through interstellar space. Now, researchers have used microlensing and the fortuitous orientation of the Gaia space telescope to spot a Saturn-sized planet that’s the first found in what’s called the “Einstein desert,” which may be telling us something about the origin of rogue planets.

Going rogue

Most of the planets we’ve identified are in orbit around stars and formed from the disks of gas and dust that surrounded the star early in its history. We’ve imaged many of these disks and even seen some with evidence of planets forming within them. So how do you get a planet that’s not bound to any stars? There are two possible routes.

The first involves gravitational interactions, either among the planets of the system or due to an encounter between the exosolar system and a passing star. Under the right circumstances, these interactions can eject a planet from its orbit and send it hurtling through interstellar space. As such, we should expect them to be like any typical planet, ranging in mass from small, rocky bodies up to gas giants. An alternative method of making a rogue planet starts with the same process of gravitational collapse that builds a star—but in this case, the process literally runs out of gas. What's left is likely to be a large gas giant, possibly somewhere between Jupiter and a brown dwarf star in mass.

https://arstechnica.com/science/2026/01/researchers-spot-saturn-sized-planet-in-the-einstein-desert/

Here we go again: Retiring coal plant forced to stay open by Trump Admin

On Tuesday, US Secretary of Energy Chris Wright issued a now familiar order: because of a supposed energy emergency, a coal plant scheduled for closure would be forced to remain open. This time, the order targeted one of the three units present at Craig Station in Colorado, which was scheduled to close at the end of this year. The remaining two units were expected to shut in 2028.

The supposed reason for this order is an emergency caused by a

shortage of generating capacity. “The reliable supply of power from the coal plant is essential for keeping the region’s electric grid stable,” according to a statement issued by the Department of Energy. Yet the Colorado Sun notes that Colorado’s Public Utilities Commission had already analyzed the impact of its potential closure, and determined, “Craig Unit 1 is not required for reliability or resource adequacy purposes.”

The order does not require the plant to actually produce electricity; instead, it is ordered to be available in case a shortfall in production occurs. As noted in the Colorado Sun article, actual operation of the plant would potentially violate Colorado laws, which regulate airborne pollution and set limits on greenhouse gas emissions. The cost of maintaining the plant is likely to fall on the local ratepayers, who had already adjusted to the closure plans.

The use of emergency powers by the DOE is authorized under the Federal Power Act, which allows it to order the temporary connection of generation or infrastructure when the US is at war or when “an emergency exists by reason of a sudden increase in the demand for electric energy, or a shortage of electric energy.” It is not at all clear whether “we expect demand to go up in the future,” the DOE’s current rationale, is consistent with that definition of emergency. It is also hard to see how using coal plants complies with other limits placed on the use of these emergency orders:

https://arstechnica.com/science/2025/12/trump-admin-orders-another-coal-plant-to-stay-open/

The science of how (and when) we decide to speak out—or self-censor

The US has adopted more of a middle ground approach, essentially letting private companies decide what they wanted to do. Daymude and his co-authors wanted to investigate these markedly different approaches. So they developed a computational agent-based simulation that modeled how individuals navigate between wanting to express dissent versus fear of punishment. The model also incorporates how an authority adjusts its surveillance and its policies to minimize dissent at the lowest possible cost of enforcement.

“It’s not some kind of learning theory thing,” said Daymude. “And it’s not rooted in empirical statistics. We didn’t go out and ask 1000 people, ‘What would you do if faced with this situation? Would you dissent or self-censor?’ and then build that data into the model. Our model allows us to embed some assumptions about how we think people behave broadly, but then lets us explore parameters. What happens if you’re more or less bold? What happens if punishments are more or less severe? An authority is more or less tolerant? And we can make predictions based on our fundamental assumptions about what’s going to happen.”

Let one hundred flowers bloom

According to their model, the most extreme case is an authoritarian government that adopts a draconian punishment strategy, which effectively represses all dissent in the general population. “Everyone’s best strategic choice is just

to say nothing at this point," said Daymude. "So why doesn't every authoritarian government on the planet just do this?" That led them to look more closely at the dynamics. "Maybe authoritarians start out somewhat moderate," he said. "Maybe the only way they're allowed to get to that extreme endpoint is through small changes over time."

Daymude points to China's Hundred Flowers Campaign in the 1950s as an illustrative case. Here, Chairman Mao Zedong initially encouraged open critiques of his government before abruptly cracking down aggressively when dissent got out of hand. The model showed that in such a case, dissenters' self-censorship gradually increased, culminating in near-total compliance over time.

But there's a catch. "The opposite of the Hundred Flowers is if the population is sufficiently bold, this strategy doesn't work," said Daymude. "The authoritarian can't find the pathway to become fully draconian. People just stubbornly keep dissenting. So every time it tries to ramp up severity, it's on the hook for it every time because people are still out there, they're still dissenting. They're saying, 'Catch us if you dare.'"

https://arstechnica.com/science/2025/12/the-science-of-how-and-when-we-decide-to-speak-out-or-self-censor/