Thursday, July 16, 2026

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GENTLE.NEWS

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"I've got nothing to do today but smile."

— Simon and Garfunkel

NASA Uses Subscale Aircraft to Accelerate Flight Innovation

4 Min Read NASA Uses Subscale Aircraft to Accelerate Flight Innovation An atmospheric probe model attached upside down to a quad rotor remotely piloted aircraft ascends with the Moon visible on Oct. 22, 2024. The quad rotor aircraft released the probe above Rogers Dry Lake, a flight area adjacent NASA’s Armstrong Flight Research Center in Edwards, California. The probe was designed and built at the center. Credits: NASA/Steve Freeman Testing new aerospace concepts in flight remains one of NASA’s most effective ways to advance knowledge and reduce risk. The Dale Reed Subscale Flight Research Laboratory at NASA’s Armstrong Flight Research Center in Edwards, California, supports this mission by using small, remotely piloted and autonomous aircraft as cost-effective platforms to mature innovative ideas, accelerate learning, and enable smoother transitions to full-scale flight. When experiments require a flight platform, several NASA remotely piloted aircraft are available: the Alta-X quadrotor; the Dryden Remotely Operated Integrated Drone (DROID) with its 10-foot wingspan; and the Multi-Use Cub, a 14-foot-span fixed-wing aircraft with an expandable payload capacity for flight experiments. For electric vertical takeoff and landing testing, the HQ-90 quadrotor provides an additional option. Once aircraft and experiments are cleared for operations, laboratory pilots support the mission, including ground operations and flight activities. Justin Link, left,

Source: NASA

holds the subscale aircraft in place, while Justin Hall manages engine speed during preliminary engine tests on Friday, Sept. 12, 2025, at NASA's Armstong Flight Research Center in Edwards, California. Link is a pilot for small uncrewed aircraft systems at the center's Dale Reed Subscale Flight Research Laboratory and Hall is the chief pilot. NASA/ Christopher LC Clark Flight expertise Each staff member serves as an experienced and certified subscale aircraft pilot and is prepared to fly unique one-of-a-kind or modified commercial aircraft wherever the mission requires. NASA's FireSense project conducted flights in the Geneva State Forest, located about 100 miles south of Montgomery, Alabama. NASA Armstrong flight research staff integrated the instrument onto an Alta-X drone and tested the system before deployment. Two team members then transported the drone and sensor to the forest, prepared the vehicle for flight, and operated it during the mission. The NASA sensor was flown on the drone to demonstrate how remotely piloted aircraft can gather localized weather data that influences smoke movement and fire behavior. This information may help operational agencies improve wildfire decision-making and better allocate firefighters and resources. Other missions occur closer to NASA Armstrong, such as the Enhancing Parachutes by Instrumenting the Canopy (EPIC) project. EPIC involved air-launching a capsule containing a parachute and flexible sensor from the Alta-X. Laboratory staff piloted the flights, supported flight operations, and worked with the EPIC team to design and integrate the parachute-drop mechanism and safety system into the aircraft. These tests demonstrated

Source: NASA

that a flexible sensor could help researchers study supersonic parachutes. Continuation of this work can help fill gaps in computer models, making supersonic parachutes safer and more reliable for delivering science instruments and payloads to Mars. Justin Link, left, pilot for small uncrewed aircraft systems, and Justin Hall, chief pilot for small uncrewed aircraft systems, install weather instruments on NASA's Alta X drone at the agency's Armstrong Flight Research Center in Edwards, California. Members of the center's Dale Reed Subscale Flight Research Laboratory used the Alta X to support the agency's FireSense project in March 2025 for a prescribed burn in Geneva State Forest, which is about 100 miles south of Montgomery, Alabama. NASA/Steve Freeman Advancing challenging research The Dale Reed Subscale Flight Research Laboratory uses rapid design and testing capabilities to help small aircraft fly big ideas. These concepts could lead to future breakthroughs that support NASA's missions across aeronautics, science, and exploration. For decades, NASA and its partners have advanced Automatic Collision Avoidance Technology . The research demonstrated an autopilot could detect and recover from an imminent ground collision – a capability now helping save lives in high-performance U.S. military jets. NASA Armstrong had key roles in that work and developed a simplified version, the Automatic Ground Collision Avoidance System , which was installed on the DROID for testing. The system demonstrated on the DROID — developed to assist general aviation pilots as well as remotely piloted and autonomous aircraft — performed well and led to further research toward a version that

Source: NASA

provides alerts and steering cues. The NASA Armstrong Technology Transfer Office is working to license the technology for U.S. businesses to develop the system as a commercial product. The Prandtl-D (Preliminary Research Aerodynamic Design to Lower Drag) flying-wing glider was also designed, fabricated, and flown at NASA Armstrong. Researchers found that its twisted wing design could reduce drag and generate thrust at the wingtips, advancing concepts that may support greater fuel economy for future aircraft. The original Prandtl-D is now part of the Smithsonian National Air and Space Museum collection in Washington, and the Prandtl-D3 is at the California Science Center in Los Angeles. Researchers continue developing the next generation of the design in the laboratory. A wide range of capabilities in the laboratory help transform promising concepts into flight-ready test structures. These include rapid prototyping using traditional and advanced 3D manufacturing techniques, as well as composite and conventional fabrication processes. The team of engineers and technicians also provides custom component design and specialized fabrication to meet unique research needs. The laboratory supports electrical and mechanical design, hardware and software integration, and the safety and flight-readiness processes required for successful missions. Additional technical facilities, such as the Experimental Fabrication Branch and the Environmental Laboratory at NASA Armstrong, further enhance these capabilities. Together, they support development, testing, and validation activities that advance NASA’s aeronautics and exploration goals. Deborah Jackson, Al Bowers and Abbigail Waddell successfully

Source: NASA

launch the subscale Prandtl-D 3C glider. NASA Share Details Last Updated Jul 15, 2026 Editor Dede Dinius Contact Jay Levine jay.levine-1@nasa.gov Location Armstrong Flight Research Center Related Terms Armstrong Flight Research Center Aeronautics Flight Innovation Explore More 3 min read NASA Study Points to Smoother Air Taxi Rides Article 2 days ago 3 min read A Day of Flight Testing at NASA Armstrong Article 2 weeks ago 6 min read NASA’s Newest Wind Tunnel Builds on Legacy of Innovation Article 2 weeks ago Keep Exploring Discover More Topics From NASA Armstrong Flight Research Center Aircraft Flown at Armstrong Armstrong Research & Engineering Aeronautics

Source: NASA

How the Genesis Mission’s American Science Cloud Advances Innovation

As the Director of the Scientific Networking Division at Lawrence Berkeley National Laboratory (Berkeley Lab) and Executive Director of the Energy Sciences Network (ESnet) , Inder Monga is an expert in keeping the flow of scientific data running 24/7. ESnet is the Department of Energy’s High Performance Network user facility, which provides high-performance data transfer connections linking all 17 national laboratories and 28 user facilities, scientific instruments, universities, and other research institutions across the world. In addition to leading ESnet, he is also the principal investigator for the Quantum Application Network Testbed for Novel Entanglement Technology (QUANT-NET) project, which aims to build a quantum networking testbed for distributed quantum computing; and co-PI of FABRIC, the National Science Foundation’s testbed project dedicated to advancing the science of networking for collaborative and distributed research applications. Monga’s expertise in scientific networking led him to being named Deputy Project Lead of the American Science Cloud (AmSC), a U.S. Department of Energy (DOE)-governed federated cloud infrastructure that is unifying data, models, and high-performance computing resources to accelerate DOE science. Launched in October 2025, AmSC is a cornerstone of the Genesis Mis-sion , a national initiative to advance artificial intelligence in order to

Source: Lawrence Berkeley National Laboratory

accelerate scientific discovery and deliver solutions to challenges in science, energy, and national security. In this Q&A, Monga shares his perspective on AmSC's critical role in driving scientific innovation forward, and how Berkeley Lab is helping to advance it. Q: Why is the American Science Cloud (AmSC) an important component of the Genesis Mission? Monga: As the foundational infrastructure layer for open science within the Genesis Mission platform, the AmSC project unifies extraordinary but fragmented national capabilities — massive experimental datasets and computational power — into a cohesive, AI-ready platform for science and innovation. Right now, the 17 DOE national labs and 28 user facilities connect to each other across the ESnet network, but they require dozens of different login systems and interfaces, among other challenges. The AmSC connective fabric includes a common identity layer, interoperable service interfaces across science collaborations, and AI-enabled orchestration services, intelligent storage, and other networking services that will make this distributed DOE infrastructure behave as a single, coherent system. This same connective fabric has also been extended to give scientists access to commercial cloud services and frontier AI models as well. "As the scientific landscape shifts toward data-intensive, autonomous discovery, Berkeley Lab staff are ensuring the Genesis Mission platform, including AmSC, is built to solve the most complex challenges facing modern research." – Inder Monga, ESnet Executive Director and American Science Cloud Project Deputy Q: How is Berkeley Lab playing a significant role in the AmSC effort? Monga: At Berkeley

Source: Lawrence Berkeley National Laboratory

Lab, we're contributing across all dimensions of the project, from project and product leadership to science use cases, including, for example, SYNAPS-I (SYnergistic Neutron and Photon Science – Intelligence), a multi-lab AI platform that embeds artificial intelligence into particle accelerators and synchrotrons. SYNAPS-I will compress experimental data analysis from months to near real time and make these massive synchrotron and neutron user facilities function more like "self-driving" laboratories. Several Berkeley Lab staff members serve in leadership roles for the project and are members of the AmSC Science Council, and dozens of others are developing these foundational architecture and software integration capabilities. Berkeley Lab scientists from the Advanced Light Source , Joint Genome Institute , and other research facilities are providing both the data and the scientific questions that are driving the prioritization and development of the AmSC features. OPAL (the Orchestrated Platform for Autonomous Laboratories to Accelerate AI-Driven BioDesign) and MOAT (the Multi-Office particle Accelerator Team) are two big examples. Q: How does Berkeley Lab's expertise and capabilities make the lab well positioned to contribute to the Genesis Mission? Monga: As the scientific landscape shifts toward data-intensive, autonomous discovery, Berkeley Lab staff are ensuring the Genesis Mission platform, including AmSC, is built to solve the most complex challenges facing modern research. I know others at the lab will be talking about contributing to the Transformational AI Models Consortium (ModCon), the cornerstone of the Genesis Mission's AI models and data

Source: Lawrence Berkeley National Laboratory

efforts. Our work on the AmSC side can be viewed as three pillars: First, user-driven innovation. By defining real-world science use-cases around Scientific User Facilities (SUFs) , Berkeley Lab researchers along with partners from other national labs are advancing the feature development and prioritization of the AmSc platform's capabilities, ensuring it delivers immediate, tangible value to the scientific community. Second, Berkeley Lab is providing the core infrastructure backbone for AmSC. By integrating specialized high-performance computing from NERSC (and other DOE leadership computing facilities) with next-generation networking via ESnet , we are creating a seamless environment for data-driven research. Lastly, we're spearheading the software integration and scalability efforts necessary to make the AmSC platform cohesive. Through science collaborations not only with the AmSC SUF Infrastructure Partners (SUF IPs) but also through contributions from the High Performance Data Facility project , we are harmonizing diverse experimental data streams, making the dream of an "AI-ready" national infrastructure a reality. It is a big effort, but we're proud to be part of it. ### Lawrence Berkeley National Laboratory (Berkeley Lab) is committed to groundbreaking research focused on discovery science and solutions for abundant and reliable energy supplies. The lab's expertise spans materials, chemistry, physics, biology, earth and environmental science, mathematics, and computing. Researchers from around the world rely on the lab's world-class scientific facilities for their own pioneering research. Founded in 1931 on the belief that the biggest problems are best addressed by teams, Berkeley Lab and

Source: Lawrence Berkeley National Laboratory

its scientists have been recognized with 17 Nobel Prizes. Berkeley Lab is a multiprogram national laboratory managed by the University of California for the U.S. Department of Energy’s Office of Science. DOE’s Office of Science is the single largest supporter of basic research in the physical sciences in the United States, and is working to address some of the most pressing challenges of our time. For more information, please visit energy.gov/science . Tags: AI Article AI AI for Smarter, More Powerful, More Efficient Particle Accelerators Article AI How a Machine Learning Pipeline Could Accelerate Innovation Article AI Foundational AI Models to Accelerate Biological Discovery

Source: Lawrence Berkeley National Laboratory

Rattlesnakes shed in groups

Rattlesnakes shed in groups Read More By Cooperative Research Units July 14, 2026 Prairie rattlesnakes (Crotalus viridis) may gather to shed skin - a newly documented behavior observed by researchers at the Idaho Cooperative Fish and Wildlife Research Unit. Dr. Courtney Conway, and graduate student Emily Martin, initially set out to document Prairie rattlesnake movement but ended up observing a unique behavior. Related Science Items per page 6 12 Label February 18, 2026 Idaho Cooperative Fish and Wildlife Research Unit The Idaho Cooperative Fish and Wildlife Unit (est. 1947) is a partnership among the Idaho Department of Fish and Game, University of Idaho, the U.S. Geological Survey, the U.S. Fish and Wildlife Service, and the Wildlife Management Institute. By Cooperative Research Units Idaho Cooperative Fish and Wildlife Research Unit February 18, 2026 Idaho Cooperative Fish and Wildlife Research Unit The Idaho Cooperative Fish and Wildlife Unit (est. 1947) is a partnership among the Idaho Department of Fish and Game, University of Idaho, the U.S. Geological Survey, the U.S. Fish and Wildlife Service, and the Wildlife Management Institute. Learn More Related Science Items per page 6 12 Label February 18, 2026 Idaho Cooperative Fish and Wildlife Research Unit The Idaho Cooperative Fish and Wildlife Unit (est. 1947) is a partnership among the Idaho Department of Fish and Game, University of Idaho, the U.S. Geological Survey, the U.S. Fish and Wildlife Service,

Source: U.S. Geological Survey

and the Wildlife Management Institute. By Cooperative Research Units Idaho Cooperative Fish and Wildlife Research Unit February 18, 2026 Idaho Cooperative Fish and Wildlife Research Unit The Idaho Cooperative Fish and Wildlife Unit (est. 1947) is a partnership among the Idaho Department of Fish and Game, University of Idaho, the U.S. Geological Survey, the U.S. Fish and Wildlife Service, and the Wildlife Management Institute. Learn More

Source: U.S. Geological Survey

Nationalistic performance versus Bushido traditions: Debates over Japanese cleanup at the 2026 FIFA World Cup

Some see the cleanup action as a hypocritical performance for foreigners' approval Originally published on Global Voices Trash bags used by Japanese fans during the 2026 World Cup. Screenshot from the YouTube channel of user @ taiyojr.10 . Fair use. During the 2026 FIFA World Cup, images of Japanese supporters cleaning up stadium seats after the match have once again gone viral , drawing global praise for what some deem a unique expression of "Japanese respect." Yet this international adulation is met with a strikingly different response at home: Some see the cleanup action as a hypocritical performance for foreigners' approval while ignoring systemic issues, such as gender division of labor and generational hierarchy, within Japanese society. This clash between the global gaze and domestic cynicism reveals a deep-seated frustration with how Japan represents its values on the world stage. On June 16, an X user @shisou_ posted a caricature depicting a Japanese supporter eagerly waiting for the final whistle, not to celebrate the score, but to flaunt their "politeness" for global cameras. pic.twitter.com/ab05ZRuHH0 — (@shisou_) June 16, 2026 The text within the image reads:

… I start fidgeting toward the end of Japan's matches. I keep thinking, 'Just a bit more, and we'll be able to showcase Japan's politeness to the world…!!' User @atsukotamada also posted a similar

This story originally appeared on Global Voices

illustration on the same date, pointing out the hypocrisy of the movement. “Please do it at home,” the illustration reads.

https://t.co/lHY3adqPEC pic.twitter.com/otbuLTDOoT — Atsuko TAMADA (@atsukotamada) June 16, 2026 It seems that Japanese men picking up trash at football fields is gaining attention, but the time Japanese men spend on household labor is extremely low by international standards. I hope they can prioritize household labour back home. This sentiment has been further fueled by the emergence of “Japan Pride”- branded trash bags, which lead many to view the cleanup not as a spontaneous act but as an organized effort to promote a stereotypical image of Japanese people. To critics, this transforms an inherent cultural virtue into a curated nationalistic PR stunt for the international community, as X user @awadkend_citizen spelled out:

Japanese Pride … pic.twitter.com/U811EZdVdQ — (@Awakend_Citizen) June 16, 2026 Having patriotism or pride in your own country is fine. But isn’t that something individuals should feel inside? Do we really need to print it out in big letters, have thousands of people hold it up, get cameras filming them picking up trash, then feel good when foreign media praises it? Is that what Japanese Pride is? I might just be old-fashioned, but I feel something sleazy about it. This debate also reflects a clash between two traditional Japanese aesthetic principles: The ethics of consistency and the ethics of situational conduct.

This story originally appeared on Global Voices

The origin of the post-game cleanup Culturally, “leaving the place cleaner than before” ( ) is not merely an act of tidiness, but an expression of respect for the “space” ( ) — a concept deeply embedded in Japanese martial arts (b udo), where respecting one’s opponent and surroundings is synonymous with self-discipline. This reverence is deep-seated; for instance, the tradition of high school baseball players collecting and taking home soil from Hanshin Koshien Stadium after defeat is a deeply emotional ritual. The soil serves as a memento, a symbol of their pursuit of excellence and a promise to return. Not the ball, not the bat, but the soil serves as a memento and a symbol of the iconic Mecca of Japanese high school baseball. Furthermore, Japan’s martial arts have a unique attitude toward competitions. A kendo practitioner and avid football fan told Global Voices that the mindset behind the cleanup act is deeply rooted in the Japanese martial arts spirit, bushido : Unlike mere entertainment, martial arts heavily emphasizes the importance of self-improvement and respect for the opponent. This spirit is famously summarized as a phrase: ‘reflect upon victory, show gratitude in defeat.’ Masato Tsuchida, president of the Japan Rugby Football Union, noted that the Japanese spirit of bushido — which values mental discipline over mere physical skill — allowed rugby’s gentlemanly “no-side spirit” to sink into Japanese sports culture. This is evident in the tradition of bowing on the pitch, a gesture that went viral in 2019 and was followed by the All Blacks and other international teams. Consistency vs. situational etiquette The current controversy reflects a friction between two traditional Japanese aesthetics:

the ethics of makoto (sincerity/consistency) and hare and ke (situational etiquette). Bushido traditions emphasize purity or sincerity of one's motivation (makoto), which means doing good without seeking public praise; the desire to be acknowledged is viewed as shallow or even vulgar. Japanese culture also has a historical tradition of "Hare (the formal, public sphere)" and "Ke (the ordinary, private sphere)" that regulate people's behavior in different settings. For instance, a person can maintain a disciplined persona at work but switch to a more relaxed one in private. Critics demand consistency, but defenders argue it lacks a fundamental understanding of Japanese spirit, stressing that such actions, even if performative, are still way better than inaction ( ). Defenders of the cleanup action also suggested that we should separate the supporters' genuine motives from the nationalistic PR stunt. X user, @redblue708, stressed that people should not assume that the football fans were performing to get media attention:

4 4 — (@red-blue708) June 15, 2026 People who nitpick about trash pickup being just for show. I want them to apologize to the supporters who do trash pickup every single match without it ever getting reported. It's not that they're only doing trash pickup once every four years. It's just that it only catches your eye once every four years. The core issue might not be the supporters' intent, but the problematic transformation of a quiet, spiritual virtue into an outward-facing national PR campaign. When a habit of respect is packaged for global cameras, it risks turning an internal cultural value into

an ostentatious performance. The domestic cynicism serves as a vital reminder that true national dignity cannot be manufactured for international praise. Written by Jo Carter

Shedding New Light on Yukon River Chinook Salmon Declines

Yukon River Chinook salmon have been declining for decades. These declines have limited salmon harvest and posed hardships for local communities that depend on these fish for their food sovereignty, culture, and livelihoods. Adult run sizes recently reached their lowest point ever following a downturn from 2019 to 2023. The causes were unclear. But a new study identified a heatwave-associated increase in natural mortality as an important driver of this most recent and particularly severe decline. Addressing the Challenge Like most salmon, Yukon River Chinook are anadromous. They hatch in freshwater, migrate to the ocean to grow and mature, and return to freshwater to reproduce. Adult salmon spawn in the same river in which they hatched, and each of these reproductive units is called a “run.” One of the main challenges for understanding Yukon River Chinook salmon runs is their vast range. Their life cycle spans the interior of Alaska and Canada to the Bering Sea and beyond. This makes monitoring and studying them—and identifying the causes of their declines—extremely difficult. New research led by NOAA’s Alaska Fisheries Science Center and its partners aimed to overcome these challenges. Using cutting-edge analyses, they pulled together multiple data sources from across the life cycle into a unified model framework. Integrative Research Leads to Comprehensive Model To reconstruct the full life cycle, this new modeling approach combined data from multiple sources: Juvenile marine

Source: NOAA Fisheries

survey data and bycatch information collected by the Alaska Fisheries Science Center Adult monitoring data collected by Alaska Department of Fish and Game and Fisheries and Oceans Canada One of the first questions that the research team set out to answer with this new tool was: Where in the life cycle are Chinook salmon experiencing significant impacts that could be driving declines? The team examined four factors across different stages of their life cycle: Juvenile recruitment to the ocean: the number of juveniles produced per spawner that survive in freshwater and outmigrate to the ocean Mortality due to natural causes in the marine environment during the juvenile to the adult life stages (natural mortality) Harvest on adult fish in directed fisheries Bycatch of non-targeted marine fisheries NOAA researcher and the study's lead author, Dr. Lukas DeFilippo, noted, "Not surprisingly, we found evidence to suggest that impacts operating in the early life stages have likely contributed to declines in run sizes over the past two decades, which is consistent with previous research." However, the research team found something else that stood out. Beginning in 2016, natural mortality in the post-juvenile life stages began increasing substantially. Shortly after this period, adult Yukon River Chinook salmon runs suffered their steepest drop in abundance to date. Interestingly, this collapse could not be explained by weak juvenile recruitment to the ocean alone. Rather, it reflected the effects of increased mortality occurring after the juvenile stage, such as later in the marine life cycle or during adult spawning migrations. This suggests that the bottleneck limiting adult production has shifted to later

Source: NOAA Fisheries

life stages. The increase in natural mortality aligns with a period of acute and prolonged marine heatwaves in the Bering Sea. Some of the dramatic changes to the marine ecosystem during this time may have contributed to the increased mortality. For instance, steep declines in prey species— such as capelin —during and following marine heatwaves limit energy available to predators like Chinook salmon. The study also indicated that—despite fewer severe heatwave events in the Bering Sea since 2020—natural mortality rates had not yet returned to their lower, pre-heatwave levels as of 2023. They continued to limit population productivity. Finally, the study found no evidence that harvest of adult salmon or bycatch removals prior to spawning have been significant factors in population level declines of Yukon River Chinook salmon. The integrative approach developed in this study has a number of broad applications for future research as well. “A model like this is a big step towards promoting research on the factors affecting salmon productivity across their life cycles, which was recommended by the recently convened Alaska Salmon Research Task Force ,” added Dr. Kathrine Howard, co-author of the study and Task Force member. The research team has plans to leverage this new tool for future work aimed at supporting Yukon River Chinook salmon research and recovery.

Source: NOAA Fisheries

Activity Time - Word Search

Find the words below in the puzzle. Words go across or down only.

Words to Find:

J	F	L	L	Y	H	U	B	A	O	J
W	V	H	N	R	P	W	C	I	X	K
H	T	P	N	J	D	L	G	C	V	S
D	A	H	I	J	E	D	D	G	B	V
S	H	W	Y	Z	U	Q	U	E	B	R
G	T	O	O	F	T	S	N	W	L	E
V	P	J	C	S	D	T	C	L	Z	P
X	L	D	B	X	A	M	Q	L	K	Q
Q	R	U	A	V	E	O	R	A	Y	U
J	V	G	J	Y	Q	T	C	L	Y	L
R	Q	K	R	N	W	I	S	Z	K	L