



Roc's seventh test flight flies high



Stratolaunch photograph

The Stratolaunch 'Roc' completed its seventh test flight from the Mojave Air and Space Port, June 16, 2022.

by **Cathy Hansen**
special to Aerotech News

Stratolaunch announced the completion of its seventh flight test of Roc, the world's largest flying aircraft by wingspan, June 16, 2022.

The aircraft flew for 3 hours and 1 minute over the Mojave Desert and reached an altitude of 27,000 feet, a new altitude record for the aircraft.

"Today's flight is a success story of the Stratolaunch team's ability to increase operational tempo to the pace desired by our customers for performing frequent hypersonic flight test," said Dr. Zachary Krevor, Stratolaunch chief executive officer and president. "Furthermore, the team reached a new altitude record

of 27,000 feet, thereby demonstrating the aircraft performance needed for our Talon hypersonic vehicle to reach its wide design range of hypersonic conditions."

From a Stratolaunch Facebook post, "Those with a critical eye will have noticed a new data probe on the pylon structure during the last flight. The air data boom will measure the aero environment near Talon-A to ensure we meet our release criteria for future Talon-A launches."

The pylon, which was introduced during Roc's fifth test flight on May 4, will be used to carry and release Talon-A hypersonic vehicles. The hardware is comprised of a mini-wing and adapter that is constructed with aluminum and carbon fiber skins.

Stratolaunch's Talon-A separation test vehicle, TA-0, mated to Roc carrier aircraft for the first time earlier in the month, signal-

ing a priority push toward captive carry and separation testing happening later this year.

"A new altitude record for Roc has been reached: 27,000 feet! This new maximum altitude demonstrates we can reach the heights needed for effective Talon launch trajectories. The flight focused on continued flight envelope expansion," according to the Stratolaunch Facebook page.

Test objectives included:

- Demonstration of increased maximum altitude capability;
- Continued validation of the aircraft's general performance and handling characteristics with the addition of the recently installed pylon hardware; and

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Stratolaunch photographs

The Stratolaunch Roc in flight over the Mojave Air and Space Port, June 16, 2022.

Continued validation of landing gear operations including door functionality and alternate gear extension.

The company anticipates delivering hypersonic flight services to government and commercial customers in 2023.

This was the second Stratolaunch flight in less than two weeks.

On June 9, the aircraft flew its sixth test flight lasting 1 hour and 26 minutes, reaching an altitude of 15,000 feet.

The original test flight was planned to be 3 1/2 hours. A sensor malfunctioned near the air-

plane's left elevator on the left fuselage and the flight crew made a decision to return to home base and land on runway 30 at the Mojave Air and Space Port.

The sixth flight focused on continuing Roc's flight envelope expansion with the recent addition of the pylon on the aircraft's center wing. The pylon, comprised of a mini-wing and adapter, will be used to safely carry and release reusable, rocket-powered Talon-A hypersonic vehicles.

The pylon was introduced during Roc's fifth test flight on May 4.

The hardware is comprised of a mini-wing and adapter that is constructed with aluminum and carbon fiber skins.

It weighs approximately 8,000 pounds and occupies 14 feet of Roc's 95-foot center wingspan, allowing for adequate space between the aircraft's dual fuselages for safe vehicle release and launch. The custom structure also features a winch system that will load Talon-A vehicles onto the platform from the ground, expediting launch preparation and reducing the need for ground support.



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TEDx brings experts, innovators to Edwards AFB

by KC Rawley
staff writer

TEDx Edwards brought together experts and innovators from military aviation, flight test, commercial space travel, artificial intelligence, and cyberspace on April 22, 2022.

With the subtitle of “Inspiring the Airmen of 2030 in Cyber, Space, and AI” the event was part pep rally and part technology conference intended to introduce high school students to futures in the Air Force and high tech.

Organizer Jared Thomas said he wanted to focus on the issues and wide-open opportunities the airmen of 2030 will face. He spent eight months planning the event, with co-organizer Britney Reed, and host Wendy Peterson, director of the 812th Test Support Squadron.

The last TEDx at Edwards was a half-day with “4 or 5 speakers and 120-150 people attending.” This year, there were 22 speakers, 800 aspiring airmen in-person and 1,100 online on the day, Thomas said.

“The beauty of TED is in how timeless many of the speaker’s talks are ... I firmly believe that all of these remarkable speakers assisted in capturing the excitement, passions, and pride that contribute to what makes Edwards AFB The Center of the Aerospace Testing Universe (TCOTATU).”

Speakers and attendees included area business leaders, politicians, Air Force members, contractors, as well as entrepreneurs involved in cyber security, space tourism, aviation sustainability, and cleaning up space junk.

Students bussed in from high schools all over the Antelope Valley got a chance to see motivational speakers as well as a static display of aircraft in one of the biggest hangars on Edwards AFB.

TED Talks evolved from the invitation-only TED Conference in 1990 in Monterey, Calif., where guests from varied disciplines spoke about their work and the future. In 2006, TED put speaker videos online, giving everyone access to the content. By 2009 TEDx was born, locally organized events licensed by TED but focused on the host community’s interests.

TED can disseminate TEDx videos if they choose but doesn’t allow organizers to do the same.

Edwards: Hot spot of aviation and test

Speaker after speaker paid tribute to Edwards AFB and the Air Force Test Center as the “center of the aerospace flight test universe,” as Brig.



Air Force photograph

The 2022 TEDx EdwardsAFB event took place in the largest hangar on base, Hangar 1600. Not seen are the bleachers for the hundreds of high school students who also attended.

Gen. Matthew Higer, commander of the 412th Test Wing, described it.

The event was in the largest hangar on base, and Higer told attendees they were sitting “on hallowed ground in aerospace history and breathing rarefied air.”

Higer spoke directly to the hundreds of high school students seated on bleachers at the back of the hangar, “You are the future airmen of 2030. You are the future science and technology engineers, mathematicians and tech geeks — go geeks! — of our nation, that our nation needs right now.” Making the point that not all innovation is on

base, Lancaster City Manager Jason Caudle discussed plans to make their city hall the first to be run on hydrogen power. In 2015, the city started Lancaster Choice Energy — buying and selling energy, some of it generated by solar panels on schools and civic buildings. Now, they are building a hydrogen plant that will use plasma enhanced gasification to create hydrogen through bio-digesting green waste, and super-heating mixed paper waste.

From Poland to Pasadena

Art Chmielewski from NASA’s Jet Propulsion Lab in Pasadena, Calif., had a story of perseverance for the students. As a small boy on the roof of his 10-floor apartment in Poland, he gazed at the stars and dropped model landers he built and re-built when they crashed, until his mother put a stop to it. He decided then and there that “Space is for me!”

Later at University of Michigan, Chmielewski saw a JPL engineer talk about the Viking lander and decided that the Jet Propulsion Lab was where he wanted to be. Out of 11 post-graduation interviews he went on including JPL, he got 10 job offers — all but JPL. He went into their Pasadena facility and begged for an interview. Five times he was rebuffed, but succeeded on the sixth, and ended up working on Galileo, Cassini and black hole imaging.

Chmielewski said that students should “Study! You don’t have to be a mathematician” to work on space projects. But young people should be inquisitive. “Don’t play Fortnite, Grand Theft Auto; get out there.”

Video gaming can be beneficial

While Chmielewski discouraged video game play, Capt. Zach Baumann, a U.S. Air Force personnel research analyst and co-founder of the Air Force Gaming website, considers it a morale boosting, problem solving, team building activity.

He said AF Gaming, where gamers connect on the DISCORD application, was born from a “passion for gaming, and a purpose for service.”

A 2020 Air Force study of 35,000 airmen said that 86 percent of respondents aged 18-34 identify as “gamers.”

In his Air Force job, Baumann seeks to connect “digital immigrants (today’s leaders) with digital natives (tomorrow’s leaders).” His website and frequent LinkedIn messages finally caught the attention of top leadership and partly resulted in the “Airman’s Gambit,” a Facebook Live game of chess between Baumann and retired Lt. Gen. Chris “Wedge” Weggeman.

Watched live by thousands, the game generated 275,000 messages, 350,000 voice mails, and allowed Baumann to say the “three coolest words ever: “Check. Mate. General.”

While AF Gaming began as a grassroots effort, it has now been taken over by the Air Force and has grown exponentially. Users play everything from tabletop games to the latest versions of Halo, Call of Duty, and Grand Theft Auto.

Not all base jobs are military

Media Fusion aerial photographer Ethan “Evac” Wagner, who has worked at Edwards for 12 years, said his success came because he “never said ‘no’ to any opportunity.

“Always say ‘yes,’ you never know where it will lead,” he said.

He started in administration, then company photographers needed someone to take public relations photos on the ground while they flew, so they asked if he would be interested.

That led to shooting C-17 hot brake tests on the runway, and finally pilot training so Wagner could photograph from a chase plane in the air. This led to flying in a T-38, F-15, F-18, and six years in the F-16.

Wagner told students that not all jobs on Edwards are in the military, and “you don’t have to figure things out in high school. You have time.”

Channel your inner Rock

Col. Randel J. Gordon, then vice commander of the 412th Test Wing at Edwards, gave a highly entertaining speech about “personas” and how your mental state can affect your performance on the job and in life.

Gordon used the example of stars creating alter egos to pump themselves up to perform — like Beyonce’s “Sasha Fierce” or Kobe Bryant’s “Black Mamba.” Bryant said he was inspired by *Kill Bill*, in which the main character uses the snake to kill. He became the Black Mamba on the court — “an assassin.”

“What you wear changes your mindset,” Gordon said to the students. “I’m ‘The Rock’ when I lace up and put on my gloves” for exercise, but when he comes home at night and changes out of his uniform, he’s Randy the family man.

David Nils Larson, senior adviser for Aero Flight Research, X-59 Project pilot at NASA Armstrong Flight Research Center at Edwards said he became interested in flight testing and space travel when a high school teacher gave him a copy of *The Right Stuff*.

NASA’s experimental X-59 Quesst (Quiet Supersonic Transport), built by Lockheed Martin, aims to prove that sonic booms can be quiet enough for supersonic X-planes to be flown over populated areas.

“Chuck Yeager broke the sound barrier here, and now the X-59 is going to fix it,” Larson said with a laugh. “I know we all love the boom, but not everyone does.”

Swami Iyer, president of Aerospace Systems, Virgin Galactic, and a former B-52 pilot, said that



Air Force photograph

Media Fusion aerial photographer Ethan “Evac” Wagner, speaks to TEDx attendees remotely. Wagner has worked at Edwards for 12 years, and said his success came because he “never said ‘no’ to any opportunity.

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“the link between air and space is what Virgin Galactic is all about.” Virgin Galactic’s Spaceflight System (VSS) was developed at Mojave Air and Space Port, and Iyer said that “humanity’s access to space began here in Aerospace Valley.

He compared the views of space as comparable to the experience of “seeing the ocean for the first time as a child,” and said that it changes people. If you are a jerk, and “see that and come back still a jerk, it’s a terminal condition,” Iyer said with a laugh.

Beware of space junk

Gabriel Mounce, deputy director of SPACEWERX, Air Force Research Lab in New Mexico is involved in space sustainability, among other things. He told the audience that there are 40,000 pieces of space junk in orbit, and only 5,000 of those objects are operational. He said that the amount of space junk is equivalent to “600 garbage trucks full of compacted trash.”



Air Force photograph

Capt. Zach Baumann, U.S. Air Force personnel research analyst and co-founder of the Air Force Gaming website, considers gaming a morale boosting, problem solving, team building activity.



Air Force photograph

Col. Randel J. Gordon, former vice commander of the 412th Test Wing at Edwards, gave a highly entertaining speech about “personas” and how your mental state can affect your performance on the job and in life.

“What if they hit a GPS satellite?” Mounce said, citing a list of everyday occurrences like banking, transportation and retail that would be affected, not to mention “field military services.”

Dr. Eileen Bjorkman, executive director of the AFTC, made the point that innovators often don’t know how their inventions and improvements will ultimately be used. The Air Force was in the lead developing global positioning satellites at Holloman AFB, N.M., but at one point zeroed out the budget because “in the 1970s and 80s, when they were first developing GPS, a lot of military people didn’t want it,” said Bjorkman. “They thought their navigation systems were good enough.” Luckily, cooler heads at the Pentagon vetoed the cuts.

It wasn’t until 1991, in the first Persian Gulf War, that Army soldiers trying to find their way around featureless landscapes found the navigation systems deemed “good enough” before were no longer adequate. Those soldiers started buying handheld GPS units on the civilian market and bringing them to the Persian Gulf, according to Bjorkman.

GPS is now an integral part of everyday life and “what you are working on today might have applications you haven’t imagined,” she said. “Don’t let anybody tell you that innovation killer: ‘You don’t have a requirement’” for your project.

Another idea that was not initially accepted by the military came out of AI, according to Col. Tucker “Cinco” R.M. Hamilton, director of the Air Force/MIT Artificial Accelerator. In 2000, a ground collision avoidance system (GCAS) created with artificial intelligence was developed for the F-16 that took control away from the pilot at the last possible second if they were going to crash into the ground, and returned control when the danger was past.

But people didn’t trust it, “thought it would get in the way, and possibly cause accidents,” said Hamilton.

Auto GCAS wasn’t implemented until 2014, and in those 14 years, 17 F-16 pilots died. Since the United States started using system, 10 airplanes and 11 pilots’ lives have been saved.

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Air Force photograph

Art Chmielewski from NASA’s Jet Propulsion Lab in Pasadena, Calif., encouraged students to persevere in going for the job they really want.



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TEDx, from 4

Hamilton said that we need to stop being afraid that AI is going to take over. AI is just software that allows “machine learning.” It learns alongside humans, and we need to learn how to develop AI “ethically and responsibly.”

“AI is upon us; we are not doing enough to understand it or get ready for it,” Hamilton said. “It’s already here and we are late.”

Other speakers included Carrie Hernandez of Rebel Space Technologies Inc.; Lars Hoffman, senior vice president of Rocket Lab; Capt. Tyler “Kode” Brown, F-15E/EX Experimental Test Weapon Systems Officer, Eglin AFB, Fla.; Dr. David (Jester) G. Smith, director of Air Force Plant 42 in Palmdale, Calif.; Scott S. Shyne, chief of Information Warfare Division, Air Force Research Laboratory; Dr. Anita Sengupta, CEO and founder of Hydroplane Ltd.; Dr. Shawn Phillips, Ph.D, mission director and U.S. Space Force Guardian of Air Force Research Laboratory, Edwards AFB; Dr. Yevgeniya “Jane” Pinelis, chief of AI Assurance at DOD’s Joint Artificial Intelligence Center, Dr. Daniel Millman, Ph.D. chief technology officer at Stratolaunch; Victor Luquin, aerospace engineer, 73rd Test Squadron/Engineering Flight Science, Structures, Edwards AFB; Lauren Kruszewski, F-22 Structures lead, 773rd Test Squadron, Edwards AFB; Col. Jennifer M. Krolikowski, director and chief information officer, Space Systems Command, Los Angeles AFB.

Some VA facilities introducing advance, smartphone checkin

by Doré Mobley
Veterans Administration

Check-in for your next VA appointment might be different next time you come in. Beginning this summer, some VA facilities will allow veterans to do one or both of these:

- Start the check-in process up to seven days in advance of the appointment.

- Check in at the clinic using your smartphone on the day of your appointment.

As part of how VA is modernizing the way veterans receive care, VA received extensive feedback from veterans and caregivers about how the checking-in process can be made better, especially for those who use assistive technologies to access their benefits online.

VA’s Office of Information and Technology, partnering with VHA, has applied this feedback to the design of the new, modernized patient check-in application coming soon to your location.

The VA is deploying the application at facilities geographically. Deployment within all VISNs will occur by the end of August 2022.

Five facts veterans should know about VA’s patient check-in application:

1. Veterans will always have the option to check in for an appointment with a staff member. Using the new mobile app therefore is not a requirement. VA staff are honored to check veterans in for appointments and to answer questions.

2. Veterans will need to check-in at the facility with a staff member on appointment day if they require changes to demographic (contact, next of kin, emer-

gency contact) or insurance information.

3. The patient application has two options:

- Pre-check-in helps veterans confirm demographic information is up to date prior to an appointment. If a clinic offers pre-check-in, Veterans will receive a link through a text message appointment reminder after confirming an appointment.

- Mobile check-in allows veterans to check-in for an appointment on a smartphone when they arrive at the facility. Upon arrival at a clinic offering mobile check-in, veterans should locate the poster titled, “Have an appointment? Check in with your phone” prominently on display. They should then text or scan the QR code as directed in the poster to start

the process.

4. To use the mobile app, veterans must have a smartphone that is connected to Wi-Fi or cellular service and the phone number on file with VA, as this is how VA verifies your identity. Veterans can update their contact information online.

5. The national contract for VetLink kiosks will expire at the end of September 2022. After that date, veterans should:

- Use the patient check-in application for self-service check-in or check in with a staff member.
- Submit your travel reimbursement claims through the Beneficiary Travel Self-Service System (BTSSS), mail, fax and/or in-person at a VA medical center.



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Edwards hosts Italian Air Force flight tests

by **Giancarlo Casem**
Edwards AFB, Calif.

Members of the Italian Air Force, Aeronautica Militare, recently conducted flight tests with a PA-200 Tornado at Edwards Air Force Base, Calif.

The Italian Air Force test team worked with Team Edwards to conduct test sorties to gather data on weapon pairing.

Fitment tests ensure compatibility between the aircraft and the weapon and captures data points in various environments that the aircraft may experience. The Tornado is a multi-role twin-engine, variable-sweep wing aircraft manufactured by German aircraft manufacturer Panavia.

Edwards proved to be an ideal location to conduct the flight tests, with its unrivaled clear flying conditions almost year-round. It also showcased the base's commitment to conduct tests for the warfighter, including foreign mission partners.



An Italian Air Force PA-200 Tornado lands at Edwards Air Force Base, Calif., May 9, 2022.



An Italian Air Force KC-767 lands at Edwards Air Force Base, Calif., May 9, 2022. The KC-767 was flown in to support flight tests with an Italian PA-200 recently.



Air Force photographs by Josh McClanahan

An Italian Air Force PA-200 Tornado and KC-767 flies over Edwards Air Force Base, Calif., May 9, 2022. Members of the Italian Air Force partnered with their Edwards AFB counterparts to conduct test sorties to gather data on weapon pairing.

U.S. Air Force selects future aircrew helmet

by **Lemuel Casillas**
JB Langley-Eustis, Va.

The Air Force has selected LIFT Airborne Technologies to continue with prototype development of a new helmet for Air Force fixed-wing aircrew.

The helmet prototype was chosen after Air Combat Command initiated the search for a next-generation helmet to address issues with long-term neck and back injuries, optimize aircraft technology, improve pilot longevity, and provide better fitment to diverse aircrews.

"The current helmet was based on 1980's design. Since then, gains in aircraft technology and the demographic of pilots have changed," said Scott Cota, ACC Plans and Requirements branch air crew flight equipment program analyst. "The legacy helmet was not originally designed to support advances in aircraft helmet-mounted display systems, causing pilots to fly with equipment not optimized for them, especially our female aircrew."

The implementation of helmet-mounted devices has added weight and changed the center of gravity, leading to discomfort for operators. In addition, a 2020 Air Force anthropometric study identified the need to add a size small helmet that better optimizes the fit for affected female aviators, Cota said.

The helmet requirement was one of the first initiatives to go through AFWERX, an Air Force organization focused on working with nontraditional defense companies to bring technological innovation, in 2019.

"To better understand advances in technol-

ogy, seek innovative solutions to current helmet issues, and use vendor competition to drive the initiative, AFWERX was a natural choice," Cota said.

As the lead, Cota worked with other major commands and the Air Force Life Cycle Management Center's Human Systems Program Office at Wright-Patterson Air Force Base, Ohio, to set the requirements of the new helmet for operators across the Air Force.

Key parameters identified were weight, pilot comfort, optimized fitment and protection, stability, optimized center of gravity, and integration with different helmet-mounted systems.

"Using a streamlined acquisition process to move the program, the AFLCMC took the AFWERX initiative and solicited over 100 different designs from industry. Promising designs were evaluated and submitted for further testing," said Capt. Timothy James, AFLCMC Human Systems Division of Agile Combat Support Directorate program manager. "The innovative process has allowed us to move faster than a standard acquisition while providing checks and balances to ensure a quality product."

The Air Force Research Laboratory performed a majority of the testing, but the AFLCMC also worked with the Airmen Accommodations Laboratory, the Life Support Systems Scientific, Test, Analysis, and Qualification Laboratory at Wright-Patterson as well as the 46th Test Squadron and 28th Test and Evaluation Squadron at Eglin AFB, Fla., to narrow the finalist to LIFT Airborne Technologies.

"These new helmets will offer greater appli-

cability and better fit for operators of all sizes, genders and ethnicities," James said.

The helmet will undergo additional research, testing and improvements prior to the Air Force confirming the prototype design is successful

and offering a production contract in 2024. Following production, ACC plans to take a phased approach to deliver the new helmet to all fixed-wing aircrew members across the Air Force, beginning with the F-15E Strike Eagle.



Air Force photograph by Staff Sgt. Jaylen Molden

After Air Combat Command initiated the search, the U.S. Air Force selected LIFT Airborne Technologies for a next-generation helmet. After more than 30 years of long-term neck and back injuries due to the current helmet, aircrew Airmen look forward to greater applicability and better fitting helmets for operators of all sizes, genders and ethnicities.

On this date...



June 25, 1946: The Northrop YB-35 Flying Wing made its first flight with company pilot Max Stanley flying the giant aircraft from Hawthorne, Calif., to Muroc Dry Lake. The new bomber was powered by four large air-cooled radial engines, each driving a pair of coaxial counter-rotating pusher propellers. The initial flight last 55 minutes. The XB-35 was designed as an aerodynamically efficient heavy bomber. It had a very unusual configuration for an aircraft of that time.



June 27, 1923: The world's first successful aerial refueling took place when a DH-4B, carrying Lieutenants Virgil S. Hine and Frank W. Seifert, passed gasoline through a hose to another DH-4B, flying beneath them with Lieutenants Lowell H. Smith and John P. Richter in the aircraft. Hine and Smith piloted the two planes, while Seifert and Richter handled the refueling using a 50-foot hose. The hose had manually operated valves at each end. During the refueling, 75 gallons of fuel were transferred. The second DH-4B developed engine trouble after the refueling and had to land after 6 hours and 38 minutes. The flight demonstrated the feasibility of the procedure which has since gone on to be used by most aircraft worldwide. All four officers were awarded the Distinguished Flying Cross for their accomplishment.



June 30, 1977: President Jimmy Carter cancels the B-1 Lancer program. The program was restarted in 1981, and became the B-1B Lancer. The program was restarted in 1981, largely as an interim measure due to delays in the B-2 stealth bomber program. This led to a redesign as the B-1B, which differed from the B-1A by having a lower top speed of Mach 1.25 at high altitude, but improved the low-altitude speed to Mach 0.96.



June 28, 1976: The first class to include women entered the U.S. Air Force Academy in Colorado Springs, Colo. President Gerald R. Ford signed legislation Oct. 7, 1975, permitting women to enter the military academies. The first class including women graduated in 1980.



June 30, 1978: The Rutan Model 40 Defiant, a four-seat, twin-engine homebuilt aircraft with the engines in a push-pull configuration, makes its first flight. It was designed by aerospace engineer Burt Rutan for the Rutan Aircraft Factory.

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NASA's No. 2 says the bottom line is safety first

"Be ready to meet the expected and prepare for the unexpected." Those are the words of NASA Deputy Administrator Pam Melroy as she spoke virtually at a recent safety Day at NASA's Armstrong Flight Research Center in Edwards, Calif.

Highlighting some of the agency's top priorities for a very busy year, Melroy mentioned preparing for the launch of the Artemis mission, bringing the James Webb Space Telescope online and capturing the first science with it, and closer to home at NASA Armstrong, preparing to fly the X-59 supersonic aircraft and the all-electric X-57 Mod II.

Before she was selected as a NASA astronaut, piloted two space shuttles, and commanded an orbiter's mission, Melroy was a U.S. Air Force test pilot. It was there that safety was instilled in her, including best practices and recognizing that some factors are outside people's ability to control, such as weather.

Melroy is familiar with Edwards Air Force Base, where she graduated from the Air Force Test Pilot School in 1991. Her first assignment was to the Air Force Flight Test Center at Edwards Test Operations, and she talked about her work with the C-17 Combined Test Force. The C-17 was in developmental testing and Melroy oversaw structural testing.

"We loaded the aircraft with weird cargo configurations, test modes, and maneuvers," she said. "We tested the aircraft at 80 percent of its load limits and then we did analysis, while defining the 100% load limit."

On one particular flight, conditions were not right for the tests, leading the team to complete a maneuver that was briefed, but not practiced. To make matters worse, it was nearly sunset.

"The C-17 was one of first heavy aircraft to use fly-by-wire controls," she explained. "It was not always predictable. We did the maneuver, and every light went off on the warning panel. We took a step back, reset the electronic controls, and determined we had exceeded the aircraft's load limits. We completed a full flight controllability check and then we landed 30 minutes after sunset in total dark. It was not an ideal situation."

The decisions leading to that situation are attributed to rushing to meet an artificial deadline.

"There was some complacency late in the program. Most test mishaps do not happen in middle of challenging test card, because everyone is very focused. It's when there are transitions, or



NASA photograph

NASA Deputy Administrator Pam Melroy spoke at a recent Safety Day at NASA's Armstrong Flight Research Center in Edwards, Calif.

when the team is doing something that isn't that challenging where situations can arise."

It was comfort that led to the maneuver that wasn't flown in the simulator and here's the real surprise — the maneuver resulted in the aircraft reaching 138 percent of its design limit.

When Melroy commanded space shuttle Discovery in October 2007, she had to weigh options to repair a solar array.

"When it was unfurled, it was snagged and started to tear," she recalled. We stopped and it was like a boat with the sail halfway up. It is a terrible place to be as commander and decide to repair the solar array, as it violated safety rules. I weighed potential risk during a spacewalk versus the present risk."

Mission specialist Scott Parazynski, who was balancing on an extended robotic arm, worked to put the first stitch in the array without touching it. It was not obvious to him, but Doug Wheelock was watching closely and was able to alert Parazynski to look out as the solar array was about to strike him.

"Often times doing hazardous operations, the team focuses on the hazardous and misses the big picture," Melroy said. "All of us play a part. It is on all of us to keep our eyes wide open."



Air Force photograph

NASA Deputy Administrator Pam Melroy spoke at a recent Safety Day at NASA's Armstrong Flight Research Center in Edwards, Calif., and recalled her first assignment at Edwards Air Force Base. After graduating from the base's Test Pilot School, she joined Test Operations in 1991 to work on the developmental testing of the C-17 (behind her) at the Air Force Test Center.

Melroy extended one more piece of advice — wait until the danger is over before celebrating. The crew wanted to celebrate the major accomplishment of repairing the solar array, but Melroy reminded everyone to hold off until the

spacewalkers were safely through the airlock. "It's after, or in between, when everything is fine and seems normal, or something you've done all the time, when complacency gets you," she said.

"Often times doing hazardous operations, the team focuses on the hazardous and misses the big picture. All of us play a part. It is on all of us to keep our eyes wide open."

Pam Melroy
NASA Deputy Administrator

AF announces winners of this year's art contest

by **Armando Perez**
JB San Antonio-Lackland, Texas

The Air Force Services Center recently announced the winners of this year's Air Force Art Contest.

AFSVC received more than 2,240 pieces of art in a variety of media from over 1,600 participants of all ages.

After the month-long contest closed March 31, a team of judges evaluated each entrant's artwork for impact, creativity and technical criteria in adult and youth categories.

Lila Fredberg from Edwards Air Force Base, Calif., won second place in the Youth 9-12 years category.

Accepted art media included oil, watercolor, acrylic, pastel, mixed media, gouache, egg tempera, pen and ink, graphite, charcoal, colored pencils, scratchboard, markers and metal point.

"We received more than double the entries compared to last year's contest which highlights how our installations are celebrating their artists, programs and communities," said Lt. Col. AnnaBelle Hill, Community Programs deputy director.

To view Art Contest winning entries and other submissions, go to <https://force-support.awardsplatform.com/gallery/obKOADbQ>.



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Paid Public Announcement

Notice of Completion

Third Five-Year Review Report of the National Aeronautics and Space Administration Armstrong Flight Research Center, Operable Unit 6, Edwards Air Force Base, California

The U.S. Air Force has determined that cleanup remedies at Operable Unit 6, NASA Armstrong Flight Research Center, Edwards AFB, CA are functioning as intended and are protective of human health and the environment. This operable unit is located on the northwestern edge of Rogers Dry Lakebed within the western portion of Mojave Desert.

The Air Force evaluated cleanup remedies and published the results in a five-year review report submitted to the U.S. Environmental Protection Agency (EPA). The report validated the protectiveness and functionality of the current remedies in place. Based on the review, the Air Force plans to take the following actions: installing additional annually sampled groundwater monitoring wells on Rogers Dry Lakebed; resuming in situ chemical oxidation treatment and monitoring in the areas with the highest volatile organic compound concentrations; and, using stronger oxidants to treat resistant volatile organic compounds.

The final *Third Five-Year Review Report* for OU6 NASA Armstrong can be found online at the Air Force's administrative record website at <https://ar.afcec-cloud.af.mil>. Scroll to the bottom of the page and click "Continue to site," select the "Active Duty" button, scroll down the Installation List and click on "Edwards AFB, CA," then enter 6134 in the "AR #" field. Click "Search" at the bottom of the page and click on the spy glass to view the document.

The cleanup remedies evaluated as part of the five-year review at OU6 NASA Armstrong include: land use controls (restricts access); in situ chemical oxidation (the injection of a chemical agent to break down the contaminants); bioremediation (the use of a biological agent to break down contaminants); and, groundwater monitoring.

The remedies at OU6 NASA Armstrong will continue to be evaluated every five years until the site is cleared for unrestricted use and unrestricted exposure. The next five-year review is expected to occur in 2026.

For more information or to have a copy of the *Third Five-Year Review Report* for OU6 NASA Armstrong made available to you, contact Gary Hatch, 412th Test Wing Public Affairs at (661) 277-8707 or e-mail 412tw.pae@us.af.mil.

**Air Force Civil Engineer Center
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