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Last trip to space

STS-135 crew remembers final shuttle mission

By Jay Levine
X-Press Editor

The space shuttle program has been a part of Dryden Deputy Director Pat Stoliker's life since he was about 17 years old.

"My mom drove me to 10th Street East and we watched the Enterprise roll through town and over to Dryden to get ready for the Approach and Landing Tests," he said, detailing 30 years of personal shuttle memories. "As a co-op[erative student intern] for the Air Force, I was working up at the rocket lab, and I stood up on the ridge and watched the Enterprise ALT landing.

"My dad brought me out to the base, and we watched the first shuttle land. I have had the opportunity to watch about 30 landings here. I was doing my detail at NASA Headquarters and I had an opportunity to go to the FRR [flight readiness review] for the return to flight. Just a few weeks ago, I had a chance to watch STS-135 launch.

"Shuttle is part of my entire adult life. Every aspect of it was awesome," he said.

Stoliker logged another space shuttle memory Aug. 23 when he introduced to a Dryden audience the last four people to fly a space shuttle: mission commander Chris Ferguson, pilot Doug Hurley and mission

See STS-135, page 4

EC11 00267-20 NASA Photo by Tom Tschida

EC11 00267-41 NASA Photo by Tom Tschida

Above, *from left, STS-135 crewmembers Chris Ferguson (commander), Doug Hurley, Sandy Magnus and Rex Walheim share their experiences of the final shuttle mission with a Dryden audience.*

At left*, the STS-135 crew signs autographs for an admiring group of Dryden employees.*

NASA names honorees

EXCEPTIONAL ACHIEVEMENT MEDALS

Catherine Bahm
For exceptional leadership, dedication, and tenacity in the successful execution of the Orion Pad Abort-1 flight project

Penny "P.J." Barnhill
For exceptional leadership and dedication in successfully processing the center's American Recovery and Reinvestment Act funds

Gustavo Carreno IV
For exceptional contributions to the SOFIA telescope integration, flightworthiness milestones and successful "first light" airborne observations

Patricia Daws
For exceptional achievements in co-leading the SOFIA successful and timely multi-center implementation of the JCL schedule and leading the Earned Valued implementation

David Dowdell
For exceptional engineering leadership in the area of Developmental Flight Instrumentation aboard Orion's crew exploration vehicle

David Hackenberg
For exceptional achievement, leadership, and dedication as the lead integration operations engineer for the highly successful Orion Abort Flight Test Pad Abort-1 Project

Philip Hall
For exceptional contributions to the development of the NASA Global Hawk program by leading flight operations planning and becoming the first NASA/NOAA pilot

David Nils Larson
For exceptional dedication and outstanding execution of flight test duties as a research test pilot in the Automatic Collision Avoidance Technology program

Michael Toberman
For outstanding technical skill and leadership in implementing the JCL analysis for the SOFIA program and contributing to the program's most important milestones

Eddie Zavala
For exceptional innovation and outstanding managerial leadership contributing to the agency's highly visible SOFIA program

and achieving one of its most important milestones

EXCEPTIONAL SERVICE MEDALS

Matt Graham
For exceptional service in flight operations engineering, including the completely successful standup of the Global Hawk science platform for the center and the agency

Charles Johnson
For exceptional service and sustained dedication in support of the agency's programs and initiatives

William McMullen
For exceptional contributions to reimbursable support in the collaborative efforts between the Air Force Flight Test Center and NASA Dryden Western Aeronautical Test Range

Mark Pestana
For outstanding service in developing and implementing unmanned aircraft systems at NASA Dryden, setting the example for other agencies and industry to follow

EXCEPTIONAL ENGINEERING ACHIEVEMENT MEDAL

Hon M. Chan
For outstanding performance with innovating project critical solutions quickly in support of Global Observer wing loads testing as well as of the flight vehicle

EXCEPTIONAL ADMINISTRATIVE ACHIEVEMENT MEDAL

Tamila McCoy
For exceptional initiative in carrying out office and program administrative support activities that resulted in improved processes and operations

OUTSTANDING LEADERSHIP MEDAL

Frank Batteas
For extraordinary versatility, leadership and exceptional performance as Chief Pilot, ensuring exceptional flight crew support for major flight research projects

William Brockett
For outstanding leadership and dedication in the advancement of NASA flight research missions for the atmospheric research and Earth science communities

See NASA Awards, page 6

ED11 0254-25 NASA Photo by Tom Tschida

Four NASA directors meet

Dryden Center Director David McBride, left, hosted the directors of three other NASA field centers Aug. 16 for discussions on mutual cooperation and support of each center's research, technology development and mission operations. Ramon Lugo III, second from left, director of Glenn Research Center, Cleveland; Simon P. "Pete" Worden, second from right, director of Ames Research Center, Moffett Field, Calif.; and Robert M. Lightfoot, director of Marshall Space Flight Center, Huntsville, Ala., joined other officials to tour Dryden facilities and specialized research aircraft and then joined McBride to share ideas with Dryden employees at a center directors' forum.

Steve Wildes receives SFA Award

Steve Wildes, Dryden's Quality Assurance branch chief, has received a Space Flight Awareness Award for exceptional contributions to the space shuttle program as a contractor and during 28 years of government service.

Wildes began his career in 1976 as a Rockwell International (now The Boeing Company) employee, working on the build-up and assembly of the shuttle prototype Enterprise. He worked in assembly, testing and flight preparations of all five orbiters.

He began government service in 1983, overseeing quality assurance at the Rockwell facility in Palmdale, Calif., where the orbiters underwent final assembly. He was transferred to Kennedy Space Center, Fla., where he was involved in quality assurance and orbiter processing and flight operations from 1988-1996.

In 1996, while still a Kennedy employee, he periodically was stationed in Palmdale during the major shuttle maintenance and modification cycles. He was subsequently asked to transfer to Dryden, where he established the center's inspection program.

As an honoree, Wildes visited Kennedy to see Atlantis moved from the Vehicle Assembly Building to the launch pad in preparation for STS-135. He also saw a night landing by Endeavour as it wrapped up STS-134.

Steve Wildes

News at NASA

NASA subject of sci-fi books

In an effort to inform and inspire readers about NASA, the agency's Goddard Space Flight Center in Greenbelt, Md. has partnered with New York City-based Tor-Forge Books to develop and publish a series of science-fiction-themed books.

Referred to as "NASA Inspired Works of Fiction," these books will be based on concepts pertinent to current and future agency missions and operations.

"Ultimately this agreement will benefit the public, as we look for innovative ways to communicate our past and current achievements while focusing on the needs of the future," said Nona Cheeks, director of Goddard's Innovative Partnerships initiatives.

Many who work in science and technology often credit science fiction as a significant inspiration for their career choices. The enormous popularity of science fiction is a key element in this collaboration designed to make the books a gateway to NASA achievements for the general public and generate awareness of the significant role NASA plays in everyday lives.

NASA will pair scientists and engineers with Tor-Forge writers to help raise awareness and enhance public interest in science, technology, engineering and mathematics disciplines. NASA's goal is to attract and retain students focused on STEM studies, strengthening the agency and the nation's future workforce.

For more information about available technologies from Goddard, visit http://ipp.gsfc.nasa.gov. More information about ways to partner with NASA is available at http://octpartneringtool.nasa.gov.

X-Press September 2, 2011

STS-135... from page 1

specialists Sandy Magnus and Rex Walheim. Walheim was based at Edwards during the early part of his career and graduated from the Air Force Test Pilot School.

Space shuttle Atlantis completed its last mission in July, but the mission lives on for its crew – at least for the next two months. The STS-135 crewmembers are traveling the nation to thank people for their support of the space program and recap some of the mission's highlights.

"I personally feel like this is our second home – we've had more than 40 percent of the shuttles land out here," said Ferguson, who landed Endeavour at Edwards when mission STS-126 concluded on Nov. 30, 2008. "We came out here practically seasonally to practice in the Shuttle Training Aircraft," he added.

In fact, while the shuttle crew was touring Dryden during their recent visit, they autographed the nose of NASA 944, a modified Gulfstream II Shuttle Training Aircraft. The aircraft is being retired and will eventually be on display at the center.

Ferguson also noted Dryden's aeronautics work and the 1977 prototype shuttle Enterprise ALT work, both of which made major contributions to the shuttle program in confirming the shuttle's aerodynamics and unpowered-landing capabilities.

He also recognized the first Enterprise crew of Fred Haise and Gordon Fullerton, the first NASA 747 Shuttle Carrier Aircraft crew of Fitz Fulton and Tom McMurtry, and the early shuttle crews.

"They were our heroes," Ferguson said. He then acknowledged Fullerton's wife Marie, who was in the audience.

The historical significance of being the final space shuttle crew was not lost on the STS-135 astronauts.

"We were extraordinarily honored to be part of this final mission. We tried to send it off, and we are so elated that we were able to put it to bed in the best way we knew – with a very successful mission," Ferguson said.

NASA Photo by Tony Gray and Tom Farrar

Riding a plume of fire, space shuttle Atlantis heads into the cloud-laden sky over Launch Pad 39A at Kennedy Space Center in Florida.

The STS-135 mission delivered a stockpile of supplies and parts to the International Space Station. During Atlantis' eight-day docking with the ISS, more than 11,600 pounds of supplies and equipment were unloaded and more than 5,700 pounds of equipment and discards no longer needed on station were returned to Earth.

Another key mission element, and a task for which space shuttles were uniquely suited, was retrieving the nonfunctioning 1,400-pound cooling system pump module that was replaced after it stopped working in 2010. The pump was moved from temporary storage aboard the space station and placed in the shuttle's cargo bay. Returning the pump to Earth will allow engineers to determine what caused its failure and then refurbish it as a spare.

Magnus, who on a previous mission had worked on the ISS for more than four months, said the return was "extra special" because she didn't think that after her earlier, long-duration mission she would have an opportunity to return.

"It was really thrilling. Once we docked and the [ISS] hatch was opened, it was like I never left. It looked a little bigger than when I left it two years ago, but it felt like home. When you visit on the shuttle you have your head down doing the job, and you can't really take it in the way you can when you live there because it's your lifestyle. You relax there, you work there and you live there, and it's a completely different experience. After a few weeks, you feel like you've lived there forever.

"One thing that strikes us anew, no matter how many times you've docked with the space station, is what an amazing thing it is that we accomplished," she added, referring to the station's construction.

To give listeners an idea of the station's scale, Magnus described it as being "about a football field long and a football field wide." Constructing it was successful due to the capabilities of the space shuttles, which carried large structures to space in their payload pay.

Walheim juggled a number of science experiments on STS-135. He also is a spacewalk veteran. What impressed him the most was seeing the distinctive Edwards area from space and the view of the entire west coast, especially considering he never thought he'd be seeing it from the vantage point of a shuttle in space.

"You can see from Seattle to the Gulf of California," he said.

Walheim also noted that Dryden chief engineer Jim Smolka had taken Walheim on his first T-38 flight, when both worked at Edwards.

The STS-135 mission was not originally on the shuttle flight manifest, but Atlantis and its crew were readied as a contingency rescue mission for STS-134. Until Endeavour's safe landing at the end of STS-134 on June 1, it was not certain there would be one more flight, Hurley said. Once added to the manifest, STS-135 was limited to a four-member crew due to the potential difficulty of getting the astronauts to Earth safely in the event of an emergency. The STS-135 mission was the first mission since the shuttle's return to flight in 2005 during which there was no contingency shuttle on the pad poised for a rescue mission.

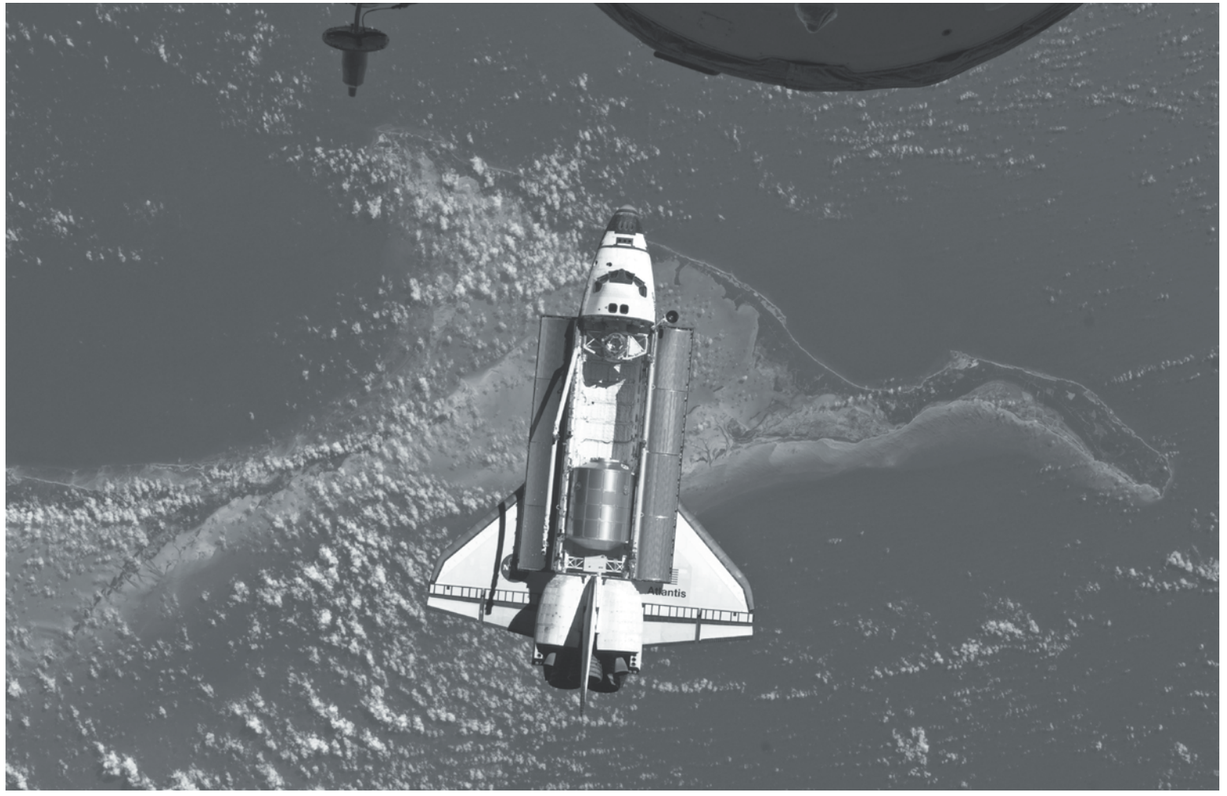
Though rescue by a Russian Soyuz was an option, a Soyuz would have been able to ferry just one astronaut at a time. Even with just four astronauts requiring rescue, planners estimated it would have taken a year to get all of the astronauts back to Earth.

"I drew the short straw, and would have stayed the longest," Walheim said.

The return to Earth was as spectacular as the mission itself, said Ferguson.

Coming in for a landing at Kennedy Space Center, "We all looked out the window," he said. "We had never seen that many people in one place. It was electric."

Though the shuttles have now been retired, the astronauts stressed that the ISS mission continues. They also said they expect NASA astronauts will again travel to space in a new, American-built space vehicle in the years to come.



NASA Photo

Space shuttle Atlantis is photographed from the International Space Station as it flies over the Bahamas prior to docking with the station. The Raffaello multipurpose logistics module can be seen inside the shuttle's cargo bay.

EC11-0267-80 NASA Photo by Tom Tschida

STS-135 mission specialists Sandy Magnus and Rex Walheim autograph a modified G-II Shuttle Training Aircraft Dryden recently acquired.

NASA Awards... from page 2

Charles Rogers

For outstanding leadership of the White Sands Missile Range launch site facilities IPT, launch site construction team and project management of Dryden abort flight test team

Roberta Sherrard

For outstanding leadership in the operation and development of Dryden mission critical systems and infrastructure

Ting Tseng

For leadership of the SOFIA platform engineering team through the systems integration and flight envelope expansion segments, enabling initiation of SOFIA science

GROUP ACHIEVEMENT AWARDS

Dryden Aircraft Parts Office Team

For outstanding service in helping to maintain the Dryden aircraft fleet flight rate both here and while on deployment.
Team Leader – David Oates

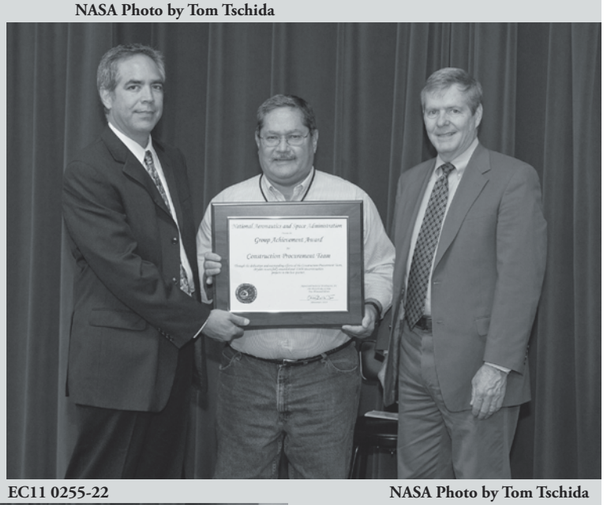
Dryden Construction Procurement Team

Through the dedication and outstanding efforts of the Construction Procurement Team, Dryden successfully awarded over $16M in construction projects in the last quarter.
Team Leader – James Hillman

See NASA Awards, page 7

EC11 0255-21 NASA Photo by Tom Tschida

At left, *Dryden Center Director David McBride, left, presents David Oates, Aircraft Parts Office team leader, with a NASA Group Achievement Award. Bryan O'Connor, NASA chief of safety and mission assurance, attended the ceremony and congratulated the winners. McBride also had a plaque with a part of the original Edwards runway for O'Connor, who had landed at Dryden twice as a shuttle crewmember. O'Connor was a pilot on Atlantis when STS-61 wrapped up at Edwards on Dec. 3, 1995, and commanded Columbia's STS-40 mission, which landed here June 14, 1991.*



EC11 0255-22 NASA Photo by Tom Tschida

At right, *Dryden Center Director David McBride, left, presents James Hillman, Construction Procurement team leader, with a NASA Group Achievement Award. Bryan O'Connor, NASA chief of safety and mission assurance, attended the ceremony.*

EC11 0255-23 NASA Photo by Tom Tschida

At left, *Dryden Center Director David McBride, left, presents James Lee, Full Scale Advanced Systems Technology and Model Reference Adaptive Control Research team leader, with a NASA Group Achievement Award. Bryan O'Connor, NASA chief of safety and mission assurance, attended the ceremony.*

NASA Awards... from page 6

Dryden FAST/MRAC Research Team
For exceptional team performance in developing a cutting edge flight research tool while accomplishing challenging, high-risk technical goals under extreme time pressure.
Team Leader – James Lee

NASA/Northrop-Grumman Global Hawk Development Team
For exceptional group achievement of the completely successful development of the first civilian usage Global Hawk platform system for the NASA science community.
Team Leader – Chris Naftel

Orion Abort Flight Test Pad Abort-1 Dryden Team
For exceptional contributions, outstanding dedication, numerous sacrifices and incomparable teamwork performed in support of the Orion Pad Abort-1 flight test.
Team Leader – Catherine Bahm

EC11 0255-24 NASA Photo by Tom Tschida

At left, *Dryden Center Director David McBride, left, presents Chris Naftel, NASA and Northrop Grumman Global Hawk Development team leader, with a NASA Group Achievement Award. Bryan O'Connor, NASA chief of safety and mission assurance, attended the Aug. 16 ceremony and congratulated the winners.*

EC11 0255-25 NASA Photo by Tom Tschida

At right, *Dryden Center Director David McBride, left, presents Catherine Bahm, Orion Abort Flight Test Pad Abort-1 Dryden Flight Research team leader, with a NASA Group Achievement Award. Bryan O'Connor is NASA chief of safety and mission assurance.*

YEARS-OF-SERVICE AWARDS

20 Years
Ralph A. Anton, Mark C. Davis, Russell Wayne James, Edwin T. Koshimoto, Cheng M. Moua, Mauricio A. Rivas, Miriam M. Rodon-Naveira, Todd C. Shaw, Scott A. Silver, Charles B. Simmons, Jennifer E. Terrelonge, John M. Vechil

25 Years
Jeffrey Ervin Bauer, Georgina R. Branco, John F. Carter, Matthew W. Cheung, Robert Clarke, Eileen V. Detka, Keri L. Eliason, Bradley C. Flick, Thomas J. Grindle, Lisa Ann Jackson, Michael Scott Kapitzke, Kevin Andrew Mount, Fred J. Reaux, Kimberly Ennix Sandhu

30 Years
John T. Bosworth, Jeffry W. Doughty, George H. Grimshaw, Dennis O. Hines, Linda E. Hoge, David A. Jones, Gary V. Kellogg, Nick C. Kiriokos, Arthur J.L. Lavoie, Jr., Jean C. Manning, James E. Mills, Maria Anna Nichols, Denise Orta-O'Neill, Mark E. Pestana, Knut N. Roepel, Richard D. Rowland, Mark A. Skoog, Randy L. Wagner, Kenneth D. Wilson

35 Years
Jose M. Barker, David W. Brink, John J. Burken, Claude V. Chacon, Cecilia F. Cordova, Robert E. Curry, James M. Hillman, William A. Lokos, Gary S. Martin, Gregory A. Poteat, Edmund K. Swan, Jack P. Trapp, Steven P. Unander, Ronald Young

40 Years
Richard R. Larson

45 Years
Glenn M. Sakamoto

Sept. 27, 1956 – Capt. Milburn G. "Mel" Apt became the first human to fly faster than three times the speed of sound in the X-2. NACA "computer" personnel calculated the speed to have been Mach 3.196 (2,094 mph). Apt lost control of the aircraft during the flight, while turning back toward Edwards, and perished.

Sept. 8, 1966 – John "Jack" McKay made his last X-15 flight, ending with a landing at Smith's Ranch, Nevada.

Edge-of-space services chosen

NASA has selected seven companies to integrate and fly technology payloads on commercial suborbital reusable platforms that carry payloads near the boundary of space.

As part of NASA's Flight Opportunities Program, each vendor will receive an indefinite-delivery, indefinite-quantity contract.

The two-year contracts, worth a combined total of $10 million, will allow NASA to draw from a pool of commercial space companies to deliver payload integration and flight services. The flights will carry a variety of payloads to help meet the agency's research and technology needs.

"Through this approach, NASA is moving toward the goal of making frequent, low-cost access to near-space available to a wide range of engineers, scientists and technologists," said NASA Chief Technologist Bobby Braun. "The government's ability to open the suborbital research frontier to a broad community of innovators will enable maturation of the new technologies and capabilities needed for NASA's future missions in space."

The selected companies are:

• Armadillo Aerospace, Heath, Texas
• Near Space Corp., Tillamook, Ore.
• Masten Space Systems, Mojave, Calif.
• Up Aerospace Inc., Highlands Ranch, Colo.
• Virgin Galactic, Mojave.
• Whittinghill Aerospace LLC, Camarillo, Calif.
• XCOR, Mojave.

NASA's Office of the Chief Technologist is charged with maturing technologies to flight readiness status for future space missions. Through the contracts, NASA intends to provide frequent flight opportunities for payloads on suborbital platforms.

The Flight Opportunities Program is managed at Dryden. For more information on the program, visit http://flightopportunities.nasa.gov.

Dryden obtains STA for display

NASA 944, one of four highly modified Gulfstream II Shuttle Training Aircraft, arrived at the center from Johnson Space Center in Houston Aug. 19 in preparation for its retirement and eventual static display at Dryden.

Space shuttle astronauts flew the aircraft to practice landing approaches to runways at Kennedy Space Center in Florida, at Edwards and at White Sands Space Harbor in New Mexico during the shuttle program's more than 30-year history. The modified G-IIs were capable of simulating flying characteristics of the unpowered space shuttles during the shuttles' steep final approach to landing.

With the conclusion of the shuttle program, all four training aircraft are being retired at various NASA facilities around the country.

ED11-0262-06 NASA Photos by Tony Landis

ED11-0262-06

Dryden has obtained a Shuttle Training Aircraft, above. The modified Gulfstream II aircraft enabled astronauts to practice shuttle landing conditions at Edwards. The NASA 747 Shuttle Carrier Aircraft is at left in the top photo. The STA cockpit, at left, resembles that of a space shuttle.

Fed food drive nets 2,341 lbs.

Dryden's 2011 Feds Feed Families food drive netted 2,341 pounds of donated non-perishables, well in excess of the goal of beating last year's total, which was 1,305 pounds.

All proceeds from the drive will go to Grace Resource Center in Lancaster.

The event is a project of multiple federal government agencies.

-Passings-

Former Dryden electronics technician Leroy "Lee" Pace of Lancaster, 85, died July 26. Pace was employed on some of the most significant Dryden flight research programs during his 25 years with NASA, including the X-15 rocket plane and space shuttle development and flight testing.

The X-Press is published the first and third Fridays of each month for civil servants, contractors and retirees of the Dryden Flight Research Center.

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