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Dream Chaser

Spacecraft arrives for testing and flight tests

By Leslie Williams

Armstrong news chief

Sierra Nevada Corporation delivered its Dream Chaser spacecraft Jan. 25 to NASA Armstrong. The spacecraft will undergo several months of testing at the center in preparation for its approach and landing flight on the Edwards Air Force Base's runway 22L.

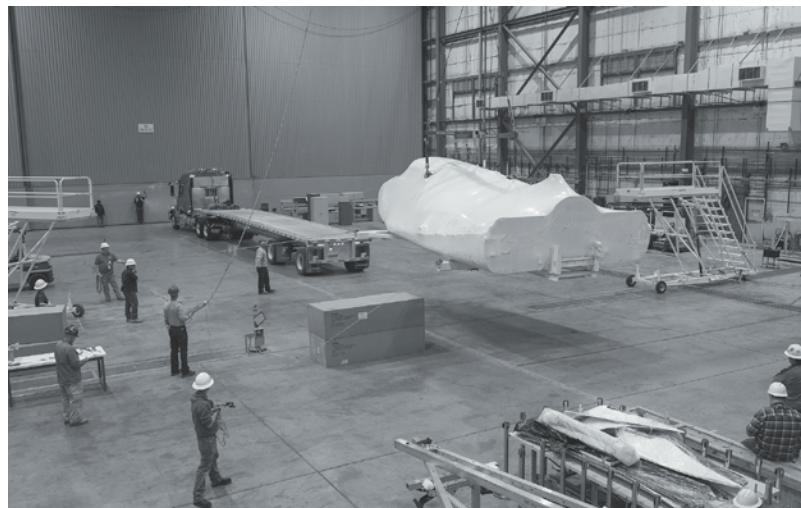
The test series is part of a developmental space act agreement SNC has with NASA's Commercial Crew Program. The upcoming test campaign will help SNC validate the aerodynamic properties, flight software and control system performance of the Dream Chaser.

The Dream Chaser is also being prepared to deliver cargo to the International Space Station under NASA's Commercial Resupply Services 2 contract beginning in 2019. The data that SNC gathers from this test campaign will help influence and inform the final design of the cargo Dream Chaser, which will fly at least six cargo delivery missions to and from the space station by 2024.



AFRC2017-0016-016

NASA/Ken Ulbrich



AFRC2017-0016-081

NASA/Ken Ulbrich

Above, the Dream Chaser spacecraft arrives at Armstrong's entrance.

At left, the Sierra Nevada Corporation's space vehicle suspends in the center's former space shuttle hangar.

Hines, director of programs, passes

By Jay Levine
X-Press editor

NASA Armstrong's Director of Programs Dennis O. Hines passed Feb. 1. He was 57.

Hines joined Armstrong in June 2008 as the Director of Programs, where he was responsible for advocacy, formulation and implementation of flight projects, policy and business management of the Center's programs.

"One of the impressive things that Dennis said recently deserves restating," said Center Director David McBride. "Dennis said, 'Only recently have I come to realize that I need to do more, work harder, and to reach out to more people so I can pass on the lessons I have learned over my career.' The foresight and recognition of the need for all of us to help the next generation is an incredible attribute. Dennis will be missed at Armstrong."

People who knew Hines said he was well liked and respected as one of Armstrong's strongest advocates.

"Dennis and I worked very closely together for nine years," said Joel Sitz, acting director for programs. "Dennis was a leader laser focused on the future of our Center. He could instantly filter through chaos, apply courage to change, and make decisions with creativity and confidence. He was a friend and excellent mentor. I will miss his energy greatly. His aspiration will live on at the center to make us a better place."

Starr Ginn, Armstrong's deputy



ED12-0384-41

NASA/Tom Tschida

Dennis Hines, left, and Pat Stoliker talk with Armstrong staff members.

Aeronautics Research director, said Hines was a great mentor and editor.

"He took the time to recognize the potential in people, open up opportunities for them and mentor them," Ginn said. "He wrote a Monday message on respect and he led by example stating, 'We see the world through the lens of our own experiences, and so each of us interprets the same information differently. To respect another person's opinion or idea means to listen to the other person and try to understand their point of view. You have to listen to understand and to

learn."

Chuck Irving, associate director of Armstrong's Science Mission Directorate, knew Hines for nearly three decades.

"His goal was always improving products and people," Irving said. "I always admired his optimism and willingness to take a chance. His Monday messages were written toward that end. On the surface, the messages encouraged us to apply time-tested attitudes and approaches to producing better results.

"The information in his messages was not new to most of us – the

value was in reminding us of the importance of applying it to our daily lives. I imagine that a good part of his motivation was self-improvement, reminding himself to do what is right. Since none of us will ever look in the mirror at perfection, maybe we can honor Dennis by reminding ourselves more often what we can do to make our enterprise a better place than actually doing it."

Before Hines accepted his role as program director, he served more than two decades in a number of leadership positions and had a broad base of program management experience with the U.S. Department of Defense's Missile Defense Agency and the U.S. Air Force.

Hines served in many leadership positions at the Air Force Test Center for more than 22 years. He first came to the test center in 1981, where he was responsible for all stability and control planning and conducting the joint Air Force-NASA Advanced Fighter Technology Integrated F-16 program. He completed his Air Force service as director of the Program Management Directorate.

Hines was a member of the Society of Flight Test Engineers and the American Institute of Aeronautics and Astronautics.

He was married to Connie Hines, who is Armstrong's chief of the Office of Internal Controls and Management Systems. He is survived by his daughters, Leslie and Audrey; granddaughter, Hayley; brother, Michael and sister, Susan.

Hurd, former program manager, passes

Michele A. Hurd, a former Armstrong program manager, passed away Dec. 22. She was 59.

She started as a contractor in July 1988 at Armstrong (formerly Dryden.) She began her civil service career in the Western Aeronautical Test Range as a computer repair technician. In 2006 she transitioned to the Facilities Engineering

and Asset Management Office and retired in August 2015 as Armstrong's construction of facilities program manager.

People who worked with Hurd noted she loved birthday cake, often had a Diet Coke in her hand, loved animals and if she knew someone needed help, she helped them. If she was unable to help, she found

someone who could. Supervisors described her as super productive, very organized, data driven and prepared power point presentations with a passion.

Co-workers said she had many close friendships and was sensitive to others feelings that permeated her daily interactions. She always took a strong stance against

shoddy work execution and roused support to get it right and accurate.

Hurd was a very accomplished athlete and in high school played both badminton and volleyball. She was the first woman to receive a volleyball scholarship to Florida State University. She enlisted in the Navy in 1979, where she gained her electronic technician skills.

AVBOT honors McBride

By Jay Levine
X-Press editor

NASA Armstrong Center Director David McBride accepted the Antelope Valley Board of Trade's Navigating Change Award at the 2017 Business Outlook Conference in Lancaster, California, Feb. 24.

"David's leadership has contributed to collaborations, support and partnerships throughout the greater Antelope Valley including Armstrong and Air Force Plant 42," said Art Thompson, CEO of Sage Cheshire Inc. in his nomination letter. He is also a former award recipient.

"Our community has continued to be the recipient of economic benefits and global exposure

Award, page 11



AFRC2017-0044-09

NASA/Lauren Hughes

NASA Armstrong Center Director David McBride accepts the Navigating Change Award from Kelly Hanley, Antelope Valley Board of Trade president.

Parker earns recognition

Allen Parker, Armstrong research engineer and Fiber Optics Sensing System team lead, received the Black Engineer of the Year Award (BEYA) for career achievement in government Feb. 13.

"Allen Parker's 25-year career at NASA has made technological breakthroughs that had far-reaching applications for our nation," said Roosevelt Johnson, deputy associate administrator for NASA's Office of Education. "For over a decade, Allen and his team developed a Fiber Optic Sensing System. It has a 1,000 fold improvement over conventional sensing technologies and has already proven commercially significant in other industries, with three major licenses to date."

Parker's interests in science and electronics started when he was 12. His mother believed in his "pipe dream" to become an engineer for NASA, and those dreams solidified in 1980 when a tour of NASA's Johnson Space Center was led by then astronaut Charles Bolden, who later went on to become NASA administrator in 2009. "If he can do it, why can't I?" Parker thought.



Photo courtesy of BEYA

Allen Parker received the Black Engineer of the Year Award. He is pictured with wife Linda, from left, and daughters Chloe and Cambria.

While at Prairie View A&M, he interviewed with another black engineer working for NASA, Charlie Brown, which led to his internship. "I fell in love with NASA in 1988," said Parker, "and I've been here ever since."

Janet Sellars, acting associate administrator for Diversity and Equal

Opportunity at NASA Headquarters in Washington, received BEYA's corporate promotion of education award.

The Black Engineer of the Year Award recognizes the outstanding achievements made by professionals in science, technology, engineering and math.

News at NASA

New system has 7 Earth-sized planets

NASA's Spitzer Space Telescope has revealed the first known system of seven Earth-size planets around a single star. Three of these planets are firmly located in the habitable zone, the area around the parent star where a rocky planet is most likely to have liquid water.

The discovery sets a new record for greatest number of habitable-zone planets found around a single star outside the solar system. All of these seven planets could have liquid water – key to life as we know it – under the right atmospheric conditions, but the chances are highest with the three in the habitable zone.

"This discovery could be a significant piece in the puzzle of finding habitable environments, places that are conducive to life," said Thomas Zurbuchen, associate administrator of the agency's Science Mission Directorate in Washington. "Answering the question 'are we alone' is a top science priority and finding so many planets like these for the first time in the habitable zone is a remarkable step forward toward that goal."

At about 40 light-years (235 trillion miles) from Earth, the system of planets is relatively close in the constellation Aquarius. Because the planets are located outside of the solar system, these planets are scientifically known as exoplanets.

This exoplanet system is called TRAPPIST-1, named for The Transiting Planets and Planetesimals Small Telescope (TRAPPIST) in Chile.

Footprints

Cernan was the last to leave the moon and now he leaves big boots for future astronauts to fill

Eugene Cernan, the last man to walk on the moon, died Jan. 16. He was 82.

Cernan, a captain in the U.S. Navy, left his mark on the history of exploration by flying three times in space, twice to the moon. He also holds the distinction of being the second American to walk in space and the last human to leave his footprints on the lunar surface.

NASA Administrator Charles Bolden said in a statement after Cernan's death, "Truly, America has lost a patriot and pioneer who helped shape our country's bold ambitions to do things that humankind had never before achieved."

A statement from Cernan's family said in part, "Even at the age of 82, Gene was passionate about sharing his desire to see the continued human exploration of space and encouraged our nation's leaders and young people to not let him remain the last man to walk on the moon."

Cernan was one of 14 astronauts selected by NASA in October 1963. He piloted the Gemini 9 mission with Commander Thomas P. Stafford on a three-day flight in June 1966. Cernan logged more than two hours outside the orbiting capsule.

In May 1969, he was the lunar module pilot of Apollo 10, the first comprehensive lunar-orbital qualification and verification test of the lunar lander. The mission confirmed the performance, stability, and reliability of the Apollo command, service and lunar modules. The

Cernan, page 12



NASA

Cernan and Ronald Evans float during Apollo 17.

Apollo 17 Commander Eugene Cernan holds a corner of the U.S. flag on the lunar surface.

NASA

At right, Apollo 17 mission commander Eugene Cernan inside the lunar module on the moon after his second moonwalk of the mission. His spacesuit is covered with lunar dust.



NASA

Probe may improve forecasts

By Jay Levine
X-Press editor

A weather probe that eventually will relay atmospheric conditions as they are unfolding and provide data to improve weather forecasts and models has begun to fly on NASA's Ikhana remotely piloted aircraft.

The flights mark the first time that the Panasonic Tropospheric Airborne Meteorological Data Reporting, or TAMDAR, Edge probe system has flown on an unmanned aircraft system as large as the Ikhana, said Ed Diks, Ikhana deputy project manager. The Ikhana flights are based at Armstrong.

"The weather information can benefit any kind of commercial or military aircraft and it could also have uses for unmanned aircraft systems in the future," Diks said.

The TAMDAR Edge system is a miniaturized, lightweight version of the TAMDAR Edge probe that has been flying on commercial airliners for more than 12 years. Panasonic Weather Solutions and Armstrong have partnered under a Space Act Agreement to develop the technology to greatly enhance flight safety involving weather, Diks said.

Ikhana pilot Hernan Posada sees the value in good weather forecasts.

"Weather is vital to our safe operation of this aircraft," Posada said. "We adhere to strict airspace rules and manufacturer limits and seeing weather and being able to avoid it is a plus."

The full capability of the probe will begin later this year when TAMDAR and the Iridium communications satellite network will provide real-time weather to pilots and be used to validate and improve weather forecasting models, Diks said. The TAMDAR Edge probe measures and detects real-time weather data including winds aloft, temperature, humidity, GPS position and altitude, pressure, altitude, airspeed, icing presence and turbulence, he added.



ED15-0184-25

NASA/Lori Losey

The Ikhana aircraft is flying a TAMDAR Edge probe that could significantly improve weather models and forecasts.



AFRC2017-0012-102

NASA/Ken Ulbrich

The TAMDAR Edge probe seen in the middle of the NASA Armstrong Ikhana is flying on a large remotely piloted aircraft for the first time.

"We will verify that we can transmit data and that the recipients of the data can read it," he explained. "At the moment we have to land, download the data and then complete the analysis. The best operational use for the developers of the system would be to access

that information whenever they want it and help develop weather models to make better predictions," Diks explained.

The benefit to aviation increases in the remote areas without major airports that NASA Armstrong missions take place, where there is

little or no local weather data, said Scott Wiley, a NASA Armstrong meteorologist.

"We have a lot of data at LAX (Los Angeles International Airport)," he explained. "We have a lot of data in Seattle. We have a lot of data in Chicago. However, we don't have a lot of data in remote areas. We don't have any data in the polar regions in places where the DC-8 flies or over hurricanes where the Global Hawk makes observations. We are filling the data gaps with TAMDAR to improve the weather models and forecasts. It's a tremendous benefit to have this data."

The TAMDAR Edge probe provides a way to provide weather data that is not available through traditional weather collection tools.

"Meteorologists use the weather data from a number of sources to gather temperature, pressure, wind speed and direction," Wiley explained. "That data, surface data and radiosonde (sensor packages that usually travel through the atmosphere on weather balloons to gather weather details) data are incorporated into the weather model to come up with a forecast. We are not just forecasting for the surface, but also aloft. Other than the radiosondes that go up twice a day, we really don't get a lot of airborne data."

TAMDAR data includes vital moisture readings, Wiley said.

"Moisture is to the atmosphere as gasoline is to a fire," Wiley explained. "We need the moisture data. An unstable atmosphere will result in a thunderstorm if we have met the threshold level of moisture. There's no guessing with TAMDAR data compared to conventional weather data from modern aircraft that do not often report moisture."

It also could have a role in NASA's Unmanned Aircraft Systems in the National Airspace System, or UAS in the NAS project. Weather observation is the primary use now

Probe, page 12



AFRC2017-0022-06

NASA/Lauren Hughes

The Air Force Research Laboratory is reflected on the wet lake bed that resulted from winter storms.

Sunrise

Winter rain on the 'dry' lake bed makes for a different landscape



AFRC2017-0022-20

NASA/Lauren Hughes

Heavy rains on the dry lake bed made the dusty desert resemble a California beach getaway. It is not uncommon for the lake beds to look like this in the early part of the year.



AFRC2017-0022-03

NASA/Lauren Hughes



AFRC2017-0022-14

NASA/Lauren Hughes

A NASA G-III aircraft is towed on the back ramp at Armstrong.



AFRC2017-0022-12

NASA/Lauren Hughes

A NASA F-15D support aircraft part of an unusual landscape, as the recent rains gave the illusion that NASA Armstrong has lake front property.



AFRC2017-0012-24 NASA/Ken Ulbrich

Heavy equipment was used to demolish the ramp near Hangar 4802 that was heavily damaged by a fire main pipe that burst in December 2015.

By Jay Levine
X-Press editor

Mountainous piles of concrete and rebar accumulated near Hangar 4802 as crews used heavy machinery and power tools to begin the \$2 million project to replace ramp areas damaged by a 20-inch cast iron fire main pipe that burst more than a year ago.

While Armstrong employees probably saw the debris, they didn't hear the demolition part of the project to replace a section of the ramp behind 4802. That's because it was decided to limit the disruption to Building 4800 staff by completing the work after hours, said Rob Callahan, Armstrong's facilities project manager.

As the sun set, the darkness brought with it cold and wind as the project began. Scattered showers throughout the day diminished as night set in. However, the rare winter rains created a massive ditch between the piles of rubble that made additional challenges for the construction crew.

Large lights were erected that illuminated the whole work area. The tap, tap, tap of the heavy machines caused the walls and floors of 4800 to vibrate and pulse.

Mark Morgan, Armstrong facility project adviser, outlined some of the project challenges. He also noted that before the start of the work night on-site workers were briefed about hazards they could encounter and what precautions were necessary to complete the work safely.

"The weather the last couple of weeks presented a bit of a challenge,

Ramp renovation, page 9

Replacing the ramp



AFRC2017-0012-37 NASA/Ken Ulbrich

Sparks fly as Brian Fabbri of Heffler Contracting cuts rebar from concrete removed during the ramp project. Concrete has to be a certain size for recycling.

Ramp renovation... from page 8

working in the cold, with the rain and the wind mixed in," Morgan said. "However, making sure everyone is able to drive home safely after working 11 hours and getting off at 3 a.m. was the biggest challenge. Mike Monahan and Dale McCoy were here each night during demo making sure the project ran smoothly and safely. It's good to have a great team to get help from whenever you need it."

After crews broke up the concrete and removed large protrusions of rebar into sizes required for recycling, the 20-inch fire main pipe was uncovered. The pipe failed in December 2015 and the resulting escape of water caused parts of the 16-inch thick concrete to lift and flooded the ramp area north of 4802.

Facilities representatives have two main concerns.

"I want to make sure we receive a quality product and to make sure it gets completed safely," Morgan explained. "The last thing we would ever want is for someone to get injured on a facilities project – no matter how small the injury may be."

Charles Gibson, Heffler superintendent, said some of the undermining of the concrete as a result of the pipe breakage was evident, especially when one section of the concrete fell 2 inches when crews began working on it.

A major challenge early in the project was ensuring that the trucking companies sent the drivers who were previously cleared to enter the Air Force base, he said. That matters when as many as 40 trucks made deliveries during the night.

"Heffler Contracting is dedicated to providing a product that is completed safely, on time and within budget," Gibson added.

One of the last major questions was resolved when the corner of Hangar 4802 was unearthed to find the footing that was suspected of being damaged was found to be structurally sound, Callahan said.

Armstrong facilities personnel



AFRC2017-0012-48 NASA/Ken Ulbrich

Before the damaged ramp could be replaced, the old ramp sections damaged by a flood had to be removed.



AFRC2017-0012-102 NASA/Ken Ulbrich

Old sections of fire main pipe were removed as part of the ramp repair project.

were tapped to complete the \$100,000 in work required to design the project to replace 54 concrete panels that make up the

area of asphalt adjacent to the north side of the ramp. The Armstrong facilities team agreed because areas of the ramp were undermined by the flooding that the only way to eliminate the potential for ramp failure and risks to aircraft was to replace the entire section.

The project began in December with the removal of the sunshades and the relocation of the shipping containers. Demolition of the concrete panels and asphalt areas started in January. Soon crews will be removing the existing 20-inch fire main and modifying the water system and two fire hydrants.

In addition, the aircraft grounding systems that are required for aircraft electrical safety on the ramp will be replaced, as will the concrete. Following the restoration of the ramp, it will be striped and is scheduled to return to operational status in the late spring.

back ramp area. Each of those panels is 16 inches thick. An additional area for demolition included two areas of 8-inch thick concrete and an

IT tips

Here are ideas to strengthen security at work and at home

Information technology security is important at work and at home. NASA Armstrong's IT staff came up with some of the top ways to safeguard information and make use of available resources.

- NASA does permit employees limited use of its information technology such as phones and computers, as long as it does not interfere with work or cost the government extra money.
- Staff members are advised never to share passwords with anyone or use the same password frequently across multiple uses. It is good practice to have separate passwords for each need and to change it immediately if there is reason to believe it might

have been compromised.

- Employees should not share personal or sensitive information in unencrypted email or on websites.
- IT professionals suggest not to open emails, click links, or read posts from unknown or untrusted senders/authors. In addition, employees should pay attention to avoid phishing scams that can trick a person into clicking on a link because it looks official by not accessing the Internet though links in email.
- Delete emails that ask for confirmation or to provide personal information such as credit card, bank account, Social Security number or passwords. If there



ED14-0132-3

NASA/Tom Tschida

Frank Mazzeo (left) and Todd Mostyn monitor network and phone activity.

is reason to suspect an email is bogus, contact the company or organization using a known or published phone number.

- Never email personal or financial information unless it is absolutely necessary and then only if the information is sent encrypted.
- Staff members should not connect government computers to

any device that is not authorized for use on a NASA network and that is not 100 percent virus and malware free.

- Employees should always make sure to use anti-virus software on computers and run frequent scans if it isn't automatically scheduled.

Tips, page 11



AFRC2017-0024-14

NASA/Lauren Hughes

The Office of the Chief Information Officer works to keep information technology flowing and secure. Front row sitting from left are: Brad Tamaki, Steve Rodriguez, Heather McCoy, Armani De la Costa, Nancy Ayala, AJ De la Costa, Onesimo Miranda, Sarah Jenkins and Joel Sasse. Second row kneeling from left are: Perry Hogan, Doug Garvin, Ricardo Urrutia, Dennis DaCruz, Monica Hoffman, Michael Lopez, Sonja Belcher, Brian Villalva, Humphrey Aguirre, James McKenzie and Francis Hormozi. Third row standing left are: Debbie Phillips, Armando Umandap, Francisco Calm, Stephanie Crutcher, Lauren Hilliker, Michael Hakala, John Lockwood, Tess Hoffman, Donna White, Israel Alfaro, Joe Hormozi, Kim Yapching, Russell Leonardo and Mike Nesel. The back row from left includes: Victor Hagan, Haig Arakelian, Edwin Jefferson, James Pavlicek, Rodger Nelson, Jaimie Baccus, John Haenny, Larry Johnson, Todd Mostyn, Kurt Joseph and Steve Simison.

Award... from page 3

bringing awareness to the businesses and capability of the Antelope Valley, while having a global effect on our future," Thompson continued.

McBride said he is honored by this community recognition.

"I am happy to accept this award on behalf of researchers, managers, innovators, lab staff, technicians, back shops support, flight crews and all of the center employees that make it possible on a daily basis for Armstrong to meet and exceed project and program requirements," he said.

"We all form one team that provides the best for our customers across a multitude of work in aeronautics, Earth and space science, exploration and technology, while encouraging the next generation of professionals," McBride said. "The work Armstrong staff does benefits the community, NASA, the country and the world."

McBride has a long record of supporting the community and businesses in the Antelope Valley, Thompson said.

"His encouragement of education, technology and the long-term support and dedication to the local

economy while directing Armstrong down new paths has shown him to be a true leader in navigating change within our community," he said.

McBride first came to the Antelope Valley in 1982 as a cooperative education student at the Center. McBride continued his contributions through numerous programs and projects and various leadership roles throughout his career before becoming acting center director in 2009 and the permanent director since 2010.

McBride also has been a tireless advocate for flight research vehicles with NASA's Aeronautics Research Mission Directorate for the Agency's return to piloted X-planes, Thompson said. The development of the X-57 Maxwell, an electric propulsion aircraft, is one such example. The X-57 is undergoing modifications at the Mojave Air and Space Port.

"David has continued to encourage progress for the Antelope Valley and NASA through his direction in the development and flight-testing of full-scale (human piloted) X-planes such as the X-57 and science platforms such as NASA's Global Hawk," Thompson

said. "In addition, he also has supported testing and development of the Orion space capsule and of private space programs including cooperative efforts at the Mojave Space Port."

Thompson said McBride was also instrumental in support and international coordination of the partnership with DLR in Germany for the NASA 747SP Stratospheric Observatory for Infrared Astronomy (SOFIA) research telescope platform, program development leading the way to future commercial aircraft in fuel efficiency and reduced noise, NASA Armstrong's collaboration with Boeing's Phantom Eye hydrogen-powered high-altitude and long-endurance aircraft and Sierra Nevada Corp.'s Dream Chaser.

"David has been a driving force behind maintaining a vibrant aeronautics R&D (research and development) effort for our nation, which has and will continue to yield benefits for commercial, civil and military aviation," Thompson said. "Through projects and programs conducted at NASA Armstrong, significant

contributions have been made, and strides continue, in flight controls and avionics technology, flight safety, aircraft fuel efficiency, noise reduction and other environmental aspects."

"David's active participation to engage the community has developed strong relationships in the Antelope Valley with large and small businesses and helped to develop business opportunities throughout multiple government organizations," Thompson said. "He also has continued to support STEM (science, technology, engineering and mathematics) education and is an ongoing advocate for education within the community and encouraging future success toward aerospace and science."

The Navigate Change award was created to recognize a person or business organization whose spirit of innovation, creativity and entrepreneurial approach combined to make a measurable impact on the greater Antelope Valley. The awardee is considered a change agent who is at the helm, in the driver's seat, or the pilot's seat to navigating change.

Tips... from page 10

- IT professionals suggest never leaving a laptop or tablet in an unsecure location.
- Staff members should always shut their computers off when taking IT assets away from Armstrong.
- Employees are advised to never leave their PIV cards unattended and in their computer when they are not nearby. Badges are only required for log in and access to some NASA websites, but can be removed from the reader after log in is complete.
- Everyone is a target for hackers. IT professionals suggest people pay attention and think when using a computer at work or at home.
- Along the same lines, employees need to be vigilant and consider the

consequences of posting items to social media sites. Status updates, photos (especially with location stamps) and comments can reveal more about people than they intend to disclose that can be used for ill purposed, such as identity theft.

- Geolocation cellphone applications that help people navigate to places they need to go also share the exact location of a person. Because it lets criminals know who isn't home, IT professionals suggest reconsidering releasing that kind of information.
- Staff members should avoid unknown websites, which have the potential to upload malware to user's computer.

- Employees should avoid downloading unauthorized software from unknown sites.
- NASA authorizes large files to be transmitted by use of NASA approved thumb drives, or NASA's Large File Transfer Protocol. Questions can be answered here

and instructions on how to use it are available here. USB flash drives listed on the agency approved list.

- Contact the help desk at ext. 6163 for general IT security questions, or the NASA Security Operations Center at 1-877-627-2732, if an IT security breach is suspected.

Losey, a former Armstrong logistics specialist, passes at 61

Kim Raymond Losey passed away Monday, Jan. 16. He was 61.

He had a 15-year career at Armstrong as a logistics specialist for Scientific Commercial Systems Corp.

Born in Dayton, Ohio, he lived

in the Antelope Valley since he was 3 years old and graduated from Antelope Valley High School.

People who knew him thought highly of him, said he was a gentle soul and a down-to-Earth person who they treasured.

Cernan... from page 4

mission included a descent to within eight nautical miles of the moon's surface.

In a 2007 interview for NASA's oral histories, Cernan said, "I keep telling Neil Armstrong that we painted that white line in the sky all the way to the moon down to 47,000 feet so he wouldn't get lost, and all he had to do was land. Made it sort of easy for him."

Cernan concluded his historic space exploration career as commander of the last human mission to the moon in December 1972. On their way to the moon, the Apollo 17 crew took one of the most iconic photographs (and the most reproduced) in space-program history, the full view of the Earth dubbed "The Blue Marble." Despite its fame, the photograph hasn't really been appreciated, Cernan said in 2007.

"What is the real meaning of seeing this picture? I've always said, I've said for a long time, I still believe it, it's going to be – well it's almost 50 now, but 50 or 100 years in the history of mankind before we look back and really understand the meaning of Apollo. Really understand what humankind had done when we left, when we truly left this planet, we're able to call another body in this universe our home. We did it way too early considering what we're doing now in space. It's almost as if JFK reached out into the 21st century where we are today, grabbed hold of a decade of time, slipped it neatly into the 1960s and 70s (and called it Apollo.)"

Apollo 17 established several records for human space flight, including the longest lunar landing flight (301 hours, 51 minutes); longest lunar surface extravehicular

activities (22 hours, six minutes); largest lunar sample return (nearly 249 pounds); and longest time in lunar orbit (147 hours, 48 minutes).

Cernan and crewmate Harrison H. (Jack) Schmitt completed three highly successful excursions to the nearby craters and the Taurus-Littrow mountains, making the moon their home for more than three days. As he left the lunar surface, Cernan said, "America's challenge of today has forged man's destiny of tomorrow. As we leave the moon and Taurus-Littrow, we leave as we came, and, God willing, we shall return, with peace and hope for all mankind."

"Apollo 17 built upon all of the other missions scientifically," said Cernan in 2008, recalling the mission as the agency celebrated its 50th Anniversary. "We had a

lunar rover, we were able to cover more ground than most of the other missions. We stayed there a little bit longer. We went to a more challenging unique area in the mountains, to learn something about the history and the origin of the moon itself."

Cernan retired from the Navy July 1, 1976, after 20 years and ended his NASA career. He went into private business and served as television commentator for early flights of the space shuttle.

Cernan was born in Chicago March 14, 1934. He graduated from Proviso Township High School in Maywood, Illinois, and received an electrical engineering degree from Purdue University in 1956. He earned a Master of Science degree in aeronautical engineering from the U.S. Naval Postgraduate School in Monterey, California.

Probe... from page 5

and although the probe will be collecting data during upcoming UAS in the NAS missions, it will not directly contribute to that effort or have connectivity with the Iridium satellite network, Diks said.

Another improvement to the TAMDAR Edge probe for NASA research is a heated probe, Wiley said. If a pilot encounters icing, the TAMDAR probe could be a backup detector. In fact, NASA Armstrong and NASA Glenn

Research Center in Cleveland are considering working together to test the probe in Glenn's icing wind tunnel to determine quantitative icing characteristics of trace icing, moderate icing or severe icing using the probe.

The TAMDAR Edge probe also can tie into another NASA Armstrong research project, the Weather Hazard Alert and Awareness Technology Radiation Radiosonde, or WHAATRR

Glider, Wiley said. WHAATRR gliders are envisioned as reusable radiosondes that could provide real-time weather data to mission managers and pilots.

"We want to develop a dropsonde capable WHAATRR glider that would be dropped into weather hazards from the TAMDAR Edge equipped DC-8 and Global Hawk," Wiley said. "The WHAATRR Gliders would fly in areas too dangerous for aircraft,

while the Global Hawk and DC-8 motherships would fly all-around and especially upstream of the hazards and providing valuable data used to forecast changes in intensity, motion and size. The National Oceanic and Atmospheric Administration calculated the costs of evacuating a coastline for a hurricane warning at \$1 million a mile. Forecasting the exact hurricane landfall would save a lot of money for cities, states and emergency services."

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