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SNC lands success

Dream Chaser clears another milestone with flight

By Leslie Williams
Armstrong news chief
and Kimberly Schwandt
SNC Space Systems communication manager

Sierra Nevada Corp.'s Dream Chaser spacecraft completed a successful free-flight test Nov. 11 at Armstrong.

The full-scale Dream Chaser test vehicle was lifted to an altitude of 12,400 feet by a 234-UT Chinook helicopter, released and flew a pre-planned flight path ending with an autonomous landing.

"The Dream Chaser flight test demonstrated excellent performance of the spacecraft's aerodynamic design and the data showed that we are firmly on the path for safe, reliable orbital flight," said Mark Sirangelo, corporate vice president of SNC's Space System business area.

The test verified and validated the performance of the Dream Chaser in the critical final approach and landing phase of flight. The research vehicle performed as models have predicted for a future return from the International Space Station.

AFRC2017-0302-214 NASA/Ken Ulbrich

Sierra Nevada Corp.'s Dream Chaser lands at Edwards. The spacecraft went through preparations for flight at Armstrong. The Dream Chaser is expected to deliver cargo to the International Space Station as soon as 2020.

The flight test helped advance Dream Chaser under NASA's Commercial Crew Program's Space Act Agreement, as well as helped prepare the vehicle for service under NASA's Commercial Resupply Services 2 program, which is a cargo service to the space station. Testing confirmed the vehicle's aerodynamic properties, flight software and control system performance.

The Dream Chaser is preparing to deliver cargo to the International Space Station and return scientific experiments as soon as 2020. The data that SNC gathered from this test campaign will help influence and inform the final design of the

Dream Chaser, page 12

Shin sees new era of aviation coming

By Jay Levine
X-Press editor

Technology and the way it is integrated is fundamentally changing and creating opportunities for NASA to enter a new era of aviation, said Jaiwon Shin, NASA's Associate Administrator for Aeronautics, during a visit to Armstrong Nov. 14.

NASA can help lead the way by focusing on technology and assisting commercial partners to meet the technology and air traffic management challenges that could be roadblocks to the U.S. maintaining its dominance in aeronautics, Shin said.

The digital revolution has given birth to explosive computing power, efficient networks and methods of transmitting data and analysis of that data at faster and faster speeds, Shin said. In a similar manner, the most advanced unmanned aircraft systems, or UAS, will be enabled by assimilating diverse technologies such as aerodynamics, vertical lift, GPS, batteries, communication links, software and computers.

Shin, page 10

Noise reduction

Technologies could help communities near airports

By Matt Kamlet
Armstrong Public Affairs

NASA has concluded a flight test series to investigate technologies that may significantly reduce airframe noise for communities near airports.

The flights, which gathered data that will be used to examine the acoustic benefits of two NASA aeronautical technologies, were completed in October at Armstrong.

The combined areas of research included NASA's Landing Gear Noise Reduction technology, or LGNR, and a flexible, twistable wing flap that has also been used to investigate improved aerodynamic efficiency. These technologies, when combined to explore their potential for reduced airframe noise, primarily during landing, are known as Acoustics Research Measurements, or ARM.

NASA conducted the flight tests by flying two Gulfstream III aircraft, one baseline and the other modified to include the flexible wing flap technology, over a 250-foot diameter microphone array developed at NASA's Langley Research Center in Virginia. The state-of-the-art array, consisting of 185 hardened microphones and designed to withstand the harsh desert environment of Edwards, was arranged in a pattern of 12 spiral arms on the Rogers Dry Lakebed.

The array was designed to identify those components of the aircraft that produce the highest levels of airframe noise, including elements that are deployed during the aircraft's approach and landing, such as the wing flaps, main landing gear and nose landing gear, according to NASA Langley Principal Investigator Mehdi Khorrami. "We want to reduce airport noise for communities, and for that we need to reduce airframe noise," Khorrami said. "Of all the sources that contribute to airframe noise, landing gear is one of the most prominent. To effectively reduce aircraft noise, we need to mitigate the noise being emitted by the landing gear, which travels to the ground and affects communities around airports."

AFRC2017-0258-28 **NASA/Ken Ulbrich**

The Landing Gear Noise Reduction fairing was designed to be porous, featuring small holes that allow air to pass through. The design was studied in computer simulations before undergoing model testing, and was ultimately scaled up to be integrated onto NASA's Subsonic Research Aircraft Testbed G-III aircraft, or SCRAT.

AFRC2017-0208-46 **NASA/Carla Thomas**

A small unmanned aircraft system was used to test and validate a microphone array designed by NASA Langley and positioned on the Rogers Dry Lakebed near Armstrong. The array, which consisted of 185 microphones, spans over 250 feet in diameter, and was designed to be able to identify which parts of an aircraft produce the most airframe noise.

Complementing the array are four individual microphones on separate stands, located around the perimeter of the array, called certification microphones. These microphones measure the total amount of noise the aircraft makes as it flies over. Researchers can compare the data from both the baseline and modified aircraft, and can thus calculate the exact amount of total noise reduction resulting from the technologies on the modified aircraft. These particular sets of data will help NASA closely follow guidelines for certification by the Federal Aviation Administration.

In order to address the noise produced by aircraft landing gear, NASA made modifications to the landing gear of a G-III research aircraft, as well as the main landing gear cavities, which are the openings in the bottom of the wing into which the main landing gear normally retracts. The concepts, shapes, and technologies for LGNR were developed at NASA Langley, where they also underwent initial wind tunnel testing in 2012 and 2013.

Engineers at Langley designed and developed a landing gear fairing that is porous, meaning it has numerous small holes on its frontal face that allow air to pass through. Model testing of this fairing confirmed predictions based on previous computer simulations that this technology would result in reduced noise levels. The technology was ultimately scaled up and integrated onto NASA's Subsonic Research

Noise, page 11

Supersonic 70th

AFRC2017-0282-29 NASA/Lauren Hughes

Center Director David McBride spoke Oct. 13 at the Edwards Air Force Base celebration of the 70th anniversary of the first supersonic flight. Armstrong began to support the first supersonic flight and is now preparing to support a supersonic X-plane called the Low-Boom Flight Demonstrator. Also on stage with McBride were Victoria and retired Brig. Gen. Charles E. "Chuck" Yeager, the first man to fly supersonically in the Bell X-1 and retired Brig. Gen. Bob Cardenas, who was the command pilot of the B-29 Superfortress that air launched Yeager into the history books.

Best in the West

Submitted photo

Armstrong's Technology Transfer Office and California State Polytechnic University in Pomona's Student Innovation Idea Lab were awarded a 2017 Federal Laboratory Consortium for Technology Transfer Far West Region Award for their outstanding partnership. Students apply their skills to real-world projects to gain valuable work experience and NASA gets a closer look at the commercialization prospects of its technology and potential business startup possibilities. From left are Jennifer Stewart, Far West regional coordinator, Winny Dong and Olukemi Sawyerr of Cal Poly Pomona, Janeya Griffin, Laura Fobel, Samantha Hull and Earl Adams of Armstrong and Annemarie Meike, Far West deputy coordinator.

News at NASA

Lava fields mimic Mars

On the lava fields of Hawaii's Kilauea volcano, a team of NASA researchers and partners have been busy doing science in a most unusual way. They were studying the biology and geology of this remarkable terrain while simulating a realistic mission to the surface of Mars. The conditions were so real that many of the expected challenges of otherworldly exploration were recreated, including a communications delay of several minutes, and limited bandwidth for transmitting data.

"Our project is a unique integration of science, operations and technology research in service of future human spaceflight," said Darlene Lim, a scientist at NASA's Ames Research Center in California, and principal investigator of the Biologic Analog Science Associated with Lava Terrains project, called BASALT. "Our goal is to design the exploration of the future."

In addition to lending its name to the research program, basalt is a type of rock that forms when lava solidifies, and this is what interests the group's science team. Hawaii's volcanic activity today is a good stand-in for the conditions that existed on ancient Mars. Biologists, geologists and geochemists work together on this project to understand the lifeforms, such as bacteria that grow on these rocks, and the factors that allow them to thrive. What the researchers discover about life in relation to Hawaii's basalt environments may help scientists choose the best sites to target when searching for signs of life – current or past – on Mars.

Recognized by NASA

The NASA Honor Awards for Armstrong employees was Aug. 23 and included 29 individual honors and four group awards.

Outstanding Leadership Medal

Brian Barr

For outstanding leadership in the management of the NASA and Armstrong mission support operations

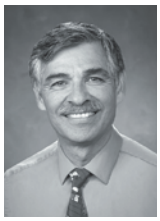
John Del Frate

For outstanding leadership demonstrating vision and innovation resulting in successful NASA-industry partnerships for the advancement of highly critical technologies

James W. Eastman

For exceptional leadership of Armstrong's procurement operations in advancing NASA's aeronautical research and airborne science goals

Robert M. Garcia



For outstanding leadership in support of SOFIA operations

Ronnie Haraguchi

For diverse and sustained distinguished leadership as Armstrong Flight Loads Laboratory operations manager

AFRC2017-0241-55 NASA/Ken Ulbrich

Sierra Cogan, center, receives a NASA Award on behalf of the Armstrong and Ames Research Center's Regionalization Team from Armstrong Director David McBride and acting NASA Administrator Robert Lightfoot. The group received the award for making significant impact through the innovative and analytical approach to regionalizing the Continuous Monitoring Program and travel functions across the two centers.

AFRC2017-0241-56 NASA/Ken Ulbrich

Carol-Ann Thomas, center, accepts the Armstrong Central Travel Office Team NASA Award from McBride and Lightfoot. The team was recognized for outstanding support to the Armstrong community from 2008 through 2016.

Barton Henwood

For outstanding leadership promoting aviation safety awareness for Armstrong in 2016

Kate M. McMurtry

For dynamic and steadfast leadership of Armstrong Flight Research Center Operations Engineering resulting in fundamental success of NASA's Aeronautics and Airborne Science missions

Exceptional Service Medal

Gregg A. Bendrick

For significant contributions to aviation medicine, flight safety and employee health

James L. Less

For exceptional service to the Agency and outstanding contributions as a research test pilot and a subject matter expert in Automatic Collision Avoidance System projects

J. Campbell Martin

For exceptional service as the Armstrong legislative liaison

Bradford A. Neal
For advancing flight safety as the Armstrong chief engineer

Ronald J. Ray
For exceptional contributions to NASA as a researcher, engineer and leader

Timothy K. Risch
For diverse, sustained and distinguished engineering achievement as a senior thermal structural engineer

Craig A. Stephens
For diverse, sustained and distinguished engineering achievement as a senior aerostructures researcher

Exceptional Public Achievement Medal

Kenneth E. Gates
For excellence in preparing maintenance plans and documents in support of the SOFIA Program

Exceptional Public Service Medal

Tim Peters
For selfless dedication to the success of NASA's mission through behind-the-scenes efforts to keep audio and video signals flowing for Armstrong and the Agency

Outstanding Public Leadership Medal

Timothy Sandon
For exceptional contributions leading Armstrong Integration Innovation Incorporated contractor aircrew to fulfill Armstrong mission requirements

Exceptional Achievement Medal

Eileen V. Detka
For continued and consistent exceptional performance to improve NASA Office of the Chief Financial Officer business processes and systems as well as employee morale

Early Career Achievement Medal

Scott J. Howe
For exceptional contributions to Armstrong, Aeronautics and Airborne Science as lead unmanned Aircraft sytem test pilot

Lisa T. Logan
For making significant impacts as resource analyst using innovative and analytical approaches supporting multiple high-profile projects at Armstrong

Erik B. Lundin
For significant contributions and performance as an early career attorney in the management and execution of NASA Space Act Agreements

AFRC2017-0241-57 **NASA/Ken Ulbrich**

Scott Howe, center, accepts the X-56A Mishap Investigation Team NASA Award from McBride and Lightfoot. The team received the award for exceptional analysis of the X-56A research vehicle accident and bringing clarity to the improvements needed in inter-organizational risk management and technical analysis.

AFRC2017-0241-58 **NASA/Ken Ulbrich**

Cheng Moua, center, accepts the X-56A Structural Test Team NASA Award from McBride and Lightfoot. The team received the award for exceptional team performance in developing efficient structural testing and analysis methods supporting return to flight of the X-56A.

Joshua Martin
For making significant impact through innovative and analytical approach to the Armstrong Management and Operations Program

Gabriela Olson
For outstanding leadership in providing supervisors and employees

NASA Awards, page 11

AFRC2017-0320-01 NASA/Ken Ulbrich

Cathy Freudinger accepts the Center Director's Award for the Building 703 Deluge Response and Recovery Team from Center Director David McBride, right and Center Deputy Director Patrick Stoliker.

AFRC2017-0320-02 NASA/Ken Ulbrich

Steve Lighthill receives the Pride in NASA Award from Stoliker.

Peers select 2017 awardees

NASA Armstrong Center Center Director's Award
The B703 Deluge Response and Recovery Team acknowledges the efforts of so many at Armstrong. Their commitment to the effort is greatly appreciated.
Building 707 Deluge Response and Recovery Team

Pride in NASA (PIN) Award
Given in recognition of an employee's example, set through their words and deeds, of what pride is within NASA Armstrong.
Steve Lighthill

James Harris Supervisor/ Manager/Leader Award
Recognizes outstanding leadership and/or management qualities that deliver exceptional results.
Dana Askins

Engineer/Scientist/Pilot
Recognizes an employee who applies fundamental principles, develops and tests new technologies or performs other outstanding contributions in their field.
Michael Buttigieg

AFRC2017-0320-24 NASA/Ken Ulbrich

Debra Randall and Michael Buttigieg accept the teamwork peer award on behalf of the G-III Solar Eclipse Team from Stoliker.

Mission Support: Administrative
Recognizes significant contributions in administrative or secretarial work.
Carmen Arevalo

Mission Support: Administrative Professional
Recognizes employees who perform exemplary professional administrative work.
Patricia Kinn

Mission Support: Finances/ Resources
Recognizes an employee performing exemplary financial or resources management work.
Kerri Tannert

Mission Support: IT Support
Recognizes significant information technology support contributions by an employee who is enthusiastic, creative, quick and successful at creating solutions for customers.
Bradley Tamaki

Mission Support: Other Support Services
Recognizes an employee performing exemplary support services in an enthusiastic manner.
Elizabeth Kissling

Mission Support: Education/ Volunteer/Outreach
Recognizes an employee who epitomizes the true spirit of outreach through enthusiasm and dedication; for those individuals who give back to Armstrong and our communities through volunteerism and selfless giving.
Barbara Buckner

Henry Arnaiz Mentor Award
Recognizes an employee who demonstrates outstanding

Peer Awards, page 11

Complex situations

Training keeps officers sharp for whatever they might face

By Jay Levine
X-Press editor

Protective Services officers train continually to meet increasing workplace security challenges to people, mission and property at Armstrong. That training was put to the test Nov. 3 when officers faced three carefully planned scenarios based on an active shooter threat.

An active shooter is a person who is not interested in negotiating, but in killing and injuring as many people as possible, said Dave Matthews, Armstrong Emergency Management Program manager. The first goal of Protective Services officers is to protect people and secure resources by stopping the threat and securing the area. These situations often occur without warning, evolve quickly and are unpredictable.

The Armstrong Emergency Management Program under the Office of Protective Services annually conducts several exercises of varying complexity and scope. The active shooter training evaluated officer response, policies, plans and tactics. Secondarily, the organizational readiness of a number of center organizations was put to the test in a series of one-on-one table top exercises.

"These exercises were developed primarily to evaluate Protective Services as an organization and how we get the job done," Matthews said. "These were very good exercises. The support from Protective Services Chief John Zellmer and Mission Support Director Jack Gregory contributed significantly to our success."

Scenarios were developed to build on established training material derived from the NASA Protective Services Training Academy. Exercise planning and development took about six months. In that time, we were able to shape and mold each scenario making them as realistic and relevant to our mission as possible, Matthews explained.

Exercise evaluators were NASA special agents or special police officers with several also being certified instructors. Team members looked at a number of factors including tactics, officer discipline, communications, incident control and most importantly, how they managed the threat and hostage safety.

AFRC2017-0303-03 **NASA/Ken Ulbrich**

Protective Services Chief John Zellmer briefs participants on the training Nov. 3.

AFRC2017-0303-67 **NASA/Ken Ulbrich**

Protective Services Officer Terl Nichols cuffs Daniel Alvarez, who was the active shooter in one of the training exercises.

"Officers faced these particular scenarios for the first time, which helped make training much more realistic," Matthews said. "They need to identify the threats – especially to safety – de-escalate and manage the situation. Quick action is needed to mitigate further harm and get everyone out safely."

The first exercise scenario included a partnered officer responding to an escalating situation in which a dispatcher reported shots were fired. A disgruntled employee quickly became violent and the situation became life threatening. Bystanders fleeing the area reported loud gunfire from the building.

"These guys really did a nice job communicating, controlling bystanders, approaching and dealing with the threat and subsequently clearing the remainder of the building for any remaining threats or casualties," Matthews said.

The second situation pitted a single officer against a dynamic hostage situation where an aggravated individual who was armed was shooting rounds into the air while preventing a second individual from escaping. The officer was required to address the threat and join with responding personnel.

In the third scenario, officers faced an ambush while in a patrol vehicle. Officers inside a patrol vehicle are literally in one of the worst places to be when being attacked. In the scenario, exercise evaluators were looking for how the officer responded to the threat, pushed through injuries, called for aid and managed the threat, Matthews explained.

"We evaluated each scenario and reviewed the good and bad as a team," Matthews explained. "Evaluations were given to the officers immediately following the exercise to discuss what went well and what could have been better. This gave officers a chance to respond

Training, page 12

Students learn on the job at Armstrong

AFRC2017-0141-1 NASA/Ken Ulbrich

A number of students worked at Armstrong as part of NASA internship opportunities including, front row from left, Jonathan Adams, Lynn Valkov, Douglas Keller, Kylie Vandenson, Landon Jernigan, Levin Mullaney, Emma Neal, Brendan Holland, Annalise Giuliani, Heather Yoost, Dario Mejia-Solis, Connor Bray, Haley Stumvoll, and Eliseo Cruz. In the second row from left are Maria Stone, Rachel Haering, Joseph Piotrowski, Erik Gustafson, Zachary Lewis, Brent Cano, Jesus Salinas, Hussein Nasr, Blake Berk, Rebecca Baiman, Abbigail Waddell, Deborah Jackson, Jacob Riley, Brandon Kloesel, and Brianna Becerra. In the back row from left are Alex Sim, Kelton Halbert, John Bodylski, Jose Manriquez, Grant Dunbar, Jack Jensen, Troy Kuhns, James Larson, James Hamory and Kyler Stephens.

Students who participated in internship opportunities at Armstrong included front row, from left, Flor Nguyen, Bridget McBride, Ethan Czuppa, Zachary Houghton, Mackenzie Duce, Mahib Hosain, Nazneen Peracha, Erin Askins, Jessica Kenny and Joyce Le. In the second row from left are Jonathan Lokos, Gary Ridge, Stephen Moes, Walker Martin, Timothy Nunez, Jeremy Katz, Nicolas Cucinella, Nikolas Pardoe and Jonah Au. In the third row from left are Joseph Christian, Keith Omogrosso, Bassem Said and Paul Sampson.

AFRC2017-0152-1 NASA/Ken Ulbrich

AFRC2017-0297-30 NASA/Lauren Hughes

Halloween and chili

A cannibalistic contractor had the final say at the Armstrong annual Halloween chili cook-off, bake sale, and costume contest. The event raised $1,500 for the center's Employee Exchange Council at the main campus and Building 703.

Chili Cook-off and costume contest winners:
Judge's Choice
First Place
OCFO Cauldron Chili (main campus)
After Burner Chili (Building 703)

Second Place
Mother of Dragons Chili (main campus)
Vintage Fire Roasted Chili (Building 703)

Third Place
Award Winning Chili (main campus)
Das Chili (Building 703)

People's Choice
First Place
Code 700 Chili (main campus)

Costume Contest Winners
First Place
Cannibalistic Contractor
Andrea Muir

Second Place
Albert Einstein
Rufus Clark

Third Place
Sanderson Sisters
Matilde Guilloty, Barbara LaBarge, Debby Parham and Bonnadeene Trimble

AFRC2017-0297-15 NASA/Lauren Hughes

Attendance was excellent at the Halloween events, as seen at left. There was chili for everyone, as seen above.

AFRC2017-297-44 NASA/Lauren Hughes

Andrea Muir displays her winning costume called Cannibalistic Contractor.

AFRC2017-0168-1 NASA/Ken Ulbrich

Pathway to success

Students who participated in the Pathways internship program at Armstrong included, front row from left, Nicholas Pontius, Neil Malik, Miguel Green Camara, Anna Gardner, Cynthia Marie Rose, Rachel Saltzman, Jacob Terry, Nickelle Reid and Javier Moreno. In the back row from left are Noah Edwards, Christopher Antony, Dylan Lamberton, Shelby Pfeifer, Loren Newton, Curtis Stump, Jillian Boetsch and Marshall Murphy.

Shin... from page 1

The need for developments to make UAS effective brought about the convergence of all these technologies, he said, and NASA-developed technologies and research will help the industry reach that potential regardless of the UAS size.

For example, the Federal Aviation Administration has forecast that small UAS sales for commercial and hobbyists, which were 2.5 million in 2016, could reach 7 million by 2020 in the U.S., Shin explained. With drone registration with the FAA having exceeded 1 million, there are probably at least another 1 million that are not registered, Shin said.

By comparison, the number of commercial, large transport aircraft is about 25,000 worldwide. The complex aviation industry is touted as high technology, but low volume. In fact, major aircraft companies estimate the number of large aircraft could double by 2035 to about 50,000 aircraft.

However, if the drone market grows as anticipated, there could be an even higher demand, much like cell phones are now a part of daily life for huge segments of the population, he said.

That future might not be more than three to five years away, he said. When regional aircraft can greatly reduce travel times from hours to minutes and cost less than it takes to maintain a car, the service will be in demand. Uber recently announced that it will be looking to demonstrate such regional services with a distributed electric, vertical takeoff and landing vehicle in 2020 in a few select cities including Los Angeles.

Just as NASA Aeronautics work based on fundamental research requested by the aviation community has led to a decision to modify and build new experimental aircraft, Shin believes working on autonomy, technology and integration required to make UAS work will eventually earn additional funding.

New technologies also are part of a broader goal he said, such as how the X-57 will demonstrate distributed electric propulsion that could power regional aircraft. The Low-Boom Flight Demonstrator is another technology that will help reduce the noise associated with sonic booms, gauge public acceptance of them and help to determine noise limits that may eventually lead to an FAA decision enabling supersonic flight over land. Both experimental aircraft, which will be flown at Armstrong, will enable the U.S. aviation industry to leverage those technologies when the moment is right, Shin said.

Urban Air Mobility will also add to the economy by creating new industries and suppliers for components such as motors, controllers, batteries, avionics and composite material systems, he added.

Companies such as Google, Amazon and The Boeing Company will be some of the drivers for the expansion in aviation that could get extremely crowded, he said. That's where NASA will have a significant role in safety and efficiency in rebuilding the air traffic control system to enable UAS to operate and to enable everyone in the aviation field to work together, Shin explained.

NASA aeronautics should not be identified by products, but rather by a philosophy flexible to the rapidly changing world, he added.

"We want to conduct breakthrough research to maintain the nation's aeronautical leadership and to support the U.S. aviation industry's ability to increase economic impact to the nation and to sustain the global leadership," Shin said. "That is the essence of who we are."

To illustrate his point, Shin discussed the automotive industry and how newcomer Tesla Inc. is succeeding in one of the toughest industrial sectors to enter. Tesla set a goal to compete with the best sport sedans in the world, the toughest segment of the automotive industry with many established and high-quality choices.

Tesla didn't choose to mimic the best sports cars, Shin explained, rather it chose to reimagine it with the latest technology and make it fully electric. Tesla is not a car company, but rather one that Elon Musk says aims to accelerate the advent of sustainable energy that at its core seeks to generate energy. Its core technology is not limited to one product. It economically builds batteries for home use and economical solar roofs that convert solar to electric.

NASA aeronautics will support a vibrant and critical aviation industry to generate even larger economic impact in jobs, trade and sustainability in global leadership internationally, Shin added.

However, there is growing international competition in Europe, China and elsewhere for the future of aviation. The U.S. must be a leader for the future through transformative technologies and configurations that will deliver revolutionary performance.

Center team wins AA Award

AFRC2017-0314-1 NASA/Lauren Hughes

Jaiwon Shin, second from right, presented the 2016 Aeronautics Research Mission Directorate Associate Administrator's Award to David McBride, left, Heather Maliska and Brad Flick. The group award in the Technology and Innovation category was for the UAS-NAS Integrated Test and Evaluation Subproject Flight Test Series 4 work.

Tristan, specialist, dies at 41

Christina Tristan, a former Media Fusion Inc. employee at Armstrong, died Oct. 27. She was 41.

She began her Armstrong career in 2006 as the gift shop manager for four years. After that she was a support specialist in 2010, business systems coordinator in 2012 and completed her career as a resource specialist in 2015.

People who knew her described her as a friend to anyone she knew and she made her friends feel appreciated.

Stewart, assistant, passes at 49

Kerri Stewart, who was the executive assistant for Armstrong Programs and Projects, passed away Oct. 23. She was 49.

Friends said she had a bubbly personality and was able to make them laugh.

Noise... from page 2

Aircraft Testbed G-III aircraft, or SCRAT.

In concert with this effort, NASA also examined the acoustic benefits from a flexible trailing-edge wing flap, which has also been used to study improved aerodynamic efficiency through a project called Adaptive Compliant Trailing Edge, or ACTE. Built by Flexsys, Inc. of Ann Arbor, Michigan, the seamless, twistable flap was developed as a joint effort between NASA and the Air Force Research Laboratory to determine whether advanced flexible wing flaps can make an aircraft more efficient in flight.

The ACTE flap was recently flown to validate its ability to reduce vortices off wing flaps at high speeds, and in May demonstrated the first ever flight of a twisted flap configuration. In addition to its aerodynamic benefits, the ACTE flap also produces lower airframe noise levels, according to project manager Kevin Weinert.

"ACTE technology also reduces noise as a byproduct that wasn't part of the original intent of that technology," explained Weinert. "ACTE testing didn't measure noise directly, but we believed that, due to the reduction in vortices off the flaps, noise would be reduced as well. So it became a synergistic benefit having ACTE flaps on the airplane during the landing gear tests."

In addition to the possibility of this noise-reducing technology being integrated into manufactured aircraft in coming years, Weinert says he believes it may be applicable to different classes and sizes of aircraft.

"I can certainly see this being something that may be integrated into aviation within the next 10 years, as reducing noise for communities around airports is a goal of aircraft manufacturers," Weinert said.

"I absolutely see this technology being applicable to other classes of aircraft as well, the biggest interest being full-size transport aircraft – commercial airliners."

With the conclusion of flight tests, researchers will now analyze the data to determine how much airframe noise reduction resulted from the integrated technologies. Khorrami says initial indications look promising.

The Acoustic Research Measurement flights were conducted through NASA's Integrated Aviation Systems Program's Flight Demonstrations and Capabilities project, under NASA's Aeronautics Research Mission Directorate.

NASA Awards... from page 5

assistance in the reasonable accommodation process

Ashley D. Prueitt

For significant contributions to the safety, health and well being of Armstrong employees leading to sustained high performance of the center

Peter M. Suh

For advancement of the state of the art in systems, sensors and methods for dynamic aeroelastic control

Silver Achievement Medal

Lawrence Camacho

For distinguised support to the NASA Ikhana Project by securing partnerships and sustaining, expanding and enabling the Ikhana to complete missions of national importance

Amber Gregory

For providing outstanding dedication, teamwork and excellence while making substantial improvements in resources support at Armstrong, which serves as a benchmark for others

Maria T. Hoffman

For dedication and resourcefulness in ensuring Armstrong fully transitioned to the Agency Smartcard on schedule and with minimal support

Steve A. Sterk

For demonstrating NASA's core value of excellence by creating an X-plane parametric cost model which increases efficiencies and reduces overall cost in support of the mission

Peer Awards... from page 6

performance in mentoring new and established employees.
Paul Bean
James Williams

Steven B. Davis Co-op/ Student Award
Recognizes a student participating in NASA Armstrong's sponsored student program who shows exceptional initiative, cooperation, excellence and exemplary performance during their term at the center.
Landon Jernigan

Jim Ferguson Safety Award
Recognizes an employee who has made Armstrong a safer place to work through their primary, collateral, or significant voluntary efforts.
Dale McCoy

Rising Star
Recognizes an employee who makes critical contributions to NASA Armstrong's mission at an early stage in their career.
Tai Clark, Scott Howe and Matt Kamlet

Technician/Mechanic
Recognizes an employee who exhibits technical expertise, significant performance, enthusiasm, determination and dedication to NASA Armstrong in a technical support area.
Walter Hargis

Facilities Personnel
Recognizes an employee performing exemplary support services in an enthusiastic manner.
John Trigg
Bill Werner

Mission Impossible
Recognizes an employee who succeeds using innovation and hard work despite difficult or challenging circumstances.
Peggy Hayes

Unsung Hero
Recognizes employees who make critical contributions to the NASA Armstrong Mission in a behind-the-scenes role.
Brian Bennett
Erin Waggoner

Can-Do Attitude
Recognizes employees who regularly "get the job done" with a positive attitude.
James Less

Create Your Own Award
Good Samaritan
Joel Curtiss III
Brian Homiak

Teamwork
Recognizes a high-performing team that collaborates to successfully achieve common goals.
G-III Solar Eclipse Team

Training... from page 7

to questions and comments about the scenario."

In order to keep the exercises as safe as possible, precautions such as protective equipment and clothing were used. The event was preplanned with the 412th Security Forces Squadron. All individuals entered the exercise area through an entry control point to prevent the introduction of weapons or ammunition. In addition, a buddy system was used.

Protective Services is not the only organization that has a major role to play in the event of an active shooter. For that reason, some of the exercises included multiple tabletop discussions with several key organizations at the center to consider how each would respond and what role they have in the aftermath of an active shooter situation.

"My goal as the emergency manager is to have discussions that ensure our readiness and engage organizations in planning. I would like our organizational leadership to take ownership and responsibility for the readiness of their employees and programs," Matthews explained. "We had some hard conversations and at the end of each table top we all are more prepared. That's what really matters."

If someone finds themselves in an active shooter situation, he or she should run, hide or fight, he said.

"People need to be aware of their situation and surroundings, such as where the exits are located," Matthews said. "If they can run when an active shooter event begins, then that is what they should do. If they cannot get away, they should look for a good place to hide. If a person has to fight, then they must fight like their life depends on it – because it does."

The Agency has introduced a program called Surviving an Armed Violent Encounter, or SAVE, to arm employees with knowledge on how to respond to an active shooter. Training has been offered already at Armstrong and will be offered by Protective Services again in 2018. While Protective Services officers seek to defuse volatile situations on center, people need to have the knowledge to enable them to react to active shooter situations wherever they go.

AFRC2017-0302-93 **NASA/Ken Ulbrich**

Sierra Nevada Corp's Dream Chaser was lifted by helicopter from the ramp at Armstrong before its successful approach and landing flight test on Nov. 11.

Dream Chaser... from page 1

Dream Chaser, which will fly at least six missions to and from the space station by 2024.

This approach and landing test expands on phase one of the flight testing with key differences including adding specific program test inputs into the trajectory, which helps the engineers refine the aerodynamic characteristics of the vehicle. The test also included orbital vehicle avionics and flight software for the first time, providing orbital vehicle design validation. The test vehicle was originally developed under NASA's Commercial Crew Integrated Capabilities Program.

Wilson, engineer, dies at 82

Joe Wilson, a former controls engineer at Armstrong (then known as Dryden Flight Research Center), died July 10. He was 82.

He worked at the center for 39 years, most notably on the F/A-18 High Alpha Research Vehicle.

He was a quiet and serious man, who was genuinely nice, according to friends.

Veith, engineer, passes at 91

Bob Veith, who worked here for more than 32 years, died Sept. 10. He was 91.

He worked for the NACA and NASA from September 1949 to December 1981 in instrumentation and was the instrumentation lead on the YF-12.

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