

Testing at AEDC helps extend life of T-38 Talon

By Deidre Ortiz
ATA Public Affairs

The T-38 Talon has undergone a structural modification program, which is expected to extend the life of the aircraft to 2029.

Throughout the years, testing has taken place at AEDC in support of upgrades to the T-38, a twin-engine, high-altitude, supersonic jet trainer that has been in Air Force service since 1961.

In the late 2000s, collaborative support was provided by technical experts at the 412th Test Wing at Edwards Air Force Base and AEDC to quantify performance improvements to the T-38 and address some problems that cropped up in the field, according to Dr. Donald Malloy, AEDC lead aerodynamics analysis engineer. At the time of the testing, Malloy was the Aerospace Testing Alliance (ATA) technical lead on the test program that included the flight testing at Edwards AFB.

“The 412th Test Wing and AEDC team used historical reports from AEDC and Edwards along with state-of-the-art modeling and simulation and test and evaluation capabilities to support test and evaluation efforts at Edwards Flight Test Center,” Malloy said. “Results from flight testing were also used by AEDC analysts to support ground testing of the modernized T-38 turbojet engine at General Electric’s engine test facility. In order to support a very aggressive flight test schedule, AEDC also prototyped some of the hardware that was installed on the flight test aircraft.”

Dr. Malloy described the overall result of

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The first completed T-38 Talon from the PACER Classic III program is unveiled July 31 at Joint Base San Antonio-Randolph, Texas. AEDC has long supported testing on the T-38 Talon, and in the last decade, collaborative support was provided by technical experts at the 412th Test Wing at Edwards AFB and AEDC to assess performance improvements of the aircraft. (U.S. Air Force photo by Airman 1st Class Stormy Archer)

The T-38 Northrop Talon supersonic jet trainer was tested in 16T in 1958. Northrop first flew the T-38 in 1959; it is still operational with the Air Education and Training Command and NASA. (AEDC file photo)

Significant achievement for future hypersonic weapons development

By Deidre Ortiz
ATA Public Affairs

AEDC engineers have reached an important stepping stone in the future of hypersonic weapons system program development with the construc-

tion and successful checkout of the Hypersonic Aeropropulsion Clean Air Testbed (HAPCAT) Regenerative Storage Heater (RSH).

Ed Tucker, executing agent and AEDC Branch Chief for the High Speed Systems Test

(HSST) program, stated the RSH is a key element in achieving the goal of the HAPCAT project.

“Our goal is to develop and demonstrate the first clean air, true enthalpy hypersonic test facility capable of varying simulated flight conditions from Mach 4.5 to 7.5 for aeropropulsion, aerothermal and aerodynamics testing,” he said.

Testing of the HAPCAT is being conducted at the Alliant Techsystems (ATK) General Applied Science Laboratories facility in Ronkonkoma, New York. Eventually the technologies developed and validated in HAPCAT will be incorporated into the Aerodynamic and Propulsion Test Unit at AEDC.

Tucker explained that current national hypersonic aeropropulsion ground test facilities use in-stream combustion or vitiation to achieve high temperatures for inlet air, which is delivered to the engine through fixed geometry single Mach number nozzles.

“Vitiated air is not representative of the air that a scramjet engine will experience while in flight and adversely affects the ability to accurately quantify the key performance and operability metrics of air-breathing scramjet propulsion systems, he said. “This results in increased flight test risk for acquisition programs, and forces developers to build in additional design margin that can reduce system performance.”

The clean-air RSH test ran for approximately 38 hours and surpassed the test objectives of achieving a maximum bed temperature of 4500 degrees Rankin (degR) and demonstrating the operational capability of the RSH to conduct aeropropulsion and aerothermal tests in the future. The bed was twice heated to temperatures exceeding 4500 degR.

After each heating cycle the system was put into “hot standby” mode to simulate the transition time between heating and blowdown during future operations. Following the hot standby periods, two simulated blowdowns were conducted where cold air was blown upward through the cored brick bed and out the coolers.

The HAPCAT technologies are being developed through the Test Resource Management Center, Test and Evaluation/Science and Technology HSST technology program, executed by AEDC. The HAPCAT RSH utilizes advanced yttria-stabilized zirconia (YsZ) cored brick. Desired flight conditions will be produced by using an air delivery system (ADS) to mix high enthalpy air from the RSH with lower enthalpy air from an alumina pebble bed heater, and with ambient air flows. The final phase of the project will include the development and demonstration of a variable Mach number nozzle which

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Revolutionary Change: Col. Todaro announces transition dates for FSS contract award



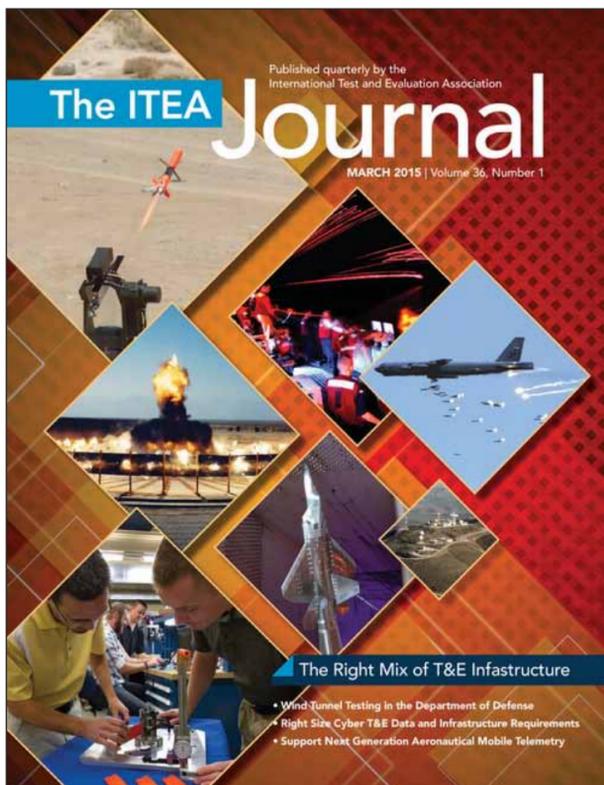
AEDC Commander Col. Rodney Todaro

AEDC Commander Col. Rodney Todaro provided an update on AEDC’s Source Selection efforts to the entire workforce via email on August 19. Additionally, messages and other information can be found online at www.arnold.af.mil/transition.

Team AEDC,

On July 22, we awarded a contract award to Akima Support Operations, LLC, (ASO) for our Facility Support Services (FSS) effort. We have now surpassed the post-award protest stage with no protests filed.

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Kraft, Stebbins receive ITEA Award

See page 3 for complete story. (Image is Copyright of ITEA Journal of Test & Evaluation, March 2015 and is the property of International Test & Evaluation Association (ITEA))

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HIGH MACH

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Core Values

- Integrity first
- Service before self
- Excellence in all we do



Vision

"ATA will be a trusted partner in delivering best value warfighter support and assert stewardship to AEDC"

Core Values

- Be accountable for our own actions
- Ensure the safety of individuals and equipment
- Demonstrate the highest integrity and ethical standards
- Communicate clearly and openly
- Deliver professional and technical excellence
- Nurture, enable and treat people fairly
- Align with customer goals and objectives
- Use disciplined and innovative processes
- Continually improve in all that we do

Arnold Police provide active shooter response options



Members of the Arnold Police First Responders advance down the hall of the A&E building during part of an active shooter training exercise at AEDC in 2009. (Photo by Rick Goodfriend)

By Arnold Police Department

Violent incidents - including but not limited to acts of terrorism, active shooter, assaults or other incidents of work-place violence - can occur on the base grounds or in close proximity with little or no warning. An "active shooter" is considered to be a suspect or assailant whose activity is immediately causing serious injury or death and has not been contained. If an incident takes place outside your area you will be notified by the Giant Voice or desktop pop-up to lockdown.

There are key options to keep in mind when faced with an active shooter threat in your vicinity:

Escape/Run

If you find yourself in immediate danger during a shooting incident, within your work center, try to escape from the scene.

During escape, plan your route, leave your stuff behind; exit with your hands visible.

Security Forces personnel may mistake you

for the shooter.

Hide

Secure yourself and your location. Secure the immediate area. Lock or barricade doors, if able. Silence cell phones and radios. Block doors; use whatever is available such as desks, tables, file cabinets, other furniture, books, etc. After securing the door, stay behind solid objects away from the door as much as possible.

Fight

As a last resort.....take action. If you find yourself in imminent danger take action. Attempt to incapacitate or act with physical aggression and throw items at the active shooter.

Once help arrives:

- Remain calm and follow instructions
- Put down any items in your hands (i.e., bags, jackets)
- Raise hands and spread fingers
- Keep hands visible at all times
- Avoid quick movements toward officers such as holding on to them
- Avoid pointing, screaming or yelling
- Do not stop to ask re-

sponse forces for help or direction when evacuating

The incident will be a life-threatening dynamic situation that evolves rapidly and demands immediate response from law enforcement to terminate.

The immediate response of the first responders on scene is to take aggressive action to find and stop the shooter(s). Rescue efforts will be delayed until the danger is mitigated or eliminated.

Preparation to protect

ourselves and our coworkers from an active shooter hinges on our ability to do three things: observe, report and respond.

Take time to refresh your knowledge and skill and report unusual activity before an incident occurs.

NATIONAL POW/MIA RECOGNITION DAY

Fulfilling Our Nation's Promise

September 18, 2015
www.dpaa.mil

AEDC POW/MIA Remembrance Day Run/Walk
September 16
opening ceremonies 11 a.m.
Administration and Engineering (A&E) Building Track
Burger Burn 10:30 a.m. - 1 p.m.

Family members of MIAs will speak on behalf of Air Force MIAs
Maj. Bobby Marvin Jones, M.D., Flight Surgeon (sister attending) and
Col. Charles W. Burkart Jr., 13th Bomb Squadron (son attending)

Respectfully,
Col. Todaro

CHANGE from page 1

I have directed our contracting officer to begin their 90-day transition period on Sept. 1 and begin performance on Dec. 1.

On this timeline, we will continue to extend the entire ATA contract and de-scope the FSS requirements when ASO, and subsequent efforts, begin performance. Our Transition Team has been planning for this phase for

well over a year; therefore, they will be providing more information in the near term. We have a sacred trust at AEDC to maintain the greatest air force the world has ever known. ASO is our new partner in this trust. Please welcome them to the AEDC family.

I am honored to serve beside you.

Smoking Policy

1. The following revised AEDC smoking policy is effective immediately. Smoking is permitted solely in designated areas identified by a plastic "smoke genie." This receptacle is for the sole purpose of cigarette butt disposal. If there is no receptacle, smoking is not permitted in that area. It is the responsibility of all smokers to clean up the area surrounding the receptacles for any cigarette butts on the ground. Smoking in government-owned vehicles is strictly prohibited. Personnel are allowed to smoke in their personal vehicles at any time. Smoking areas will be held to the absolute minimum and will be located in low traffic, low visibility areas away from points of building ingress/egress and air intakes. A map of all authorized smoking areas is available on the Team AEDC SharePoint site. Smoking near a facility in an area not designated on the map is prohibited and any smoking receptacles located in areas not shown on the map will be removed. All "smoking permitted" and "no smoking" signs will be removed unless specifically required by OSHA.

The fact a person smokes has no bearing on the number of breaks they may take. Breaks should be taken in accordance with the company/agency personnel policies that apply to all employees.

Smoking, including the use of electronic cigarettes and smokeless tobacco, is prohibited in any area, at times when official business is being conducted with government clients, test customers, outside visitors and dignitaries, and where official business is being conducted including conference rooms, auditorium settings, business meetings, or in any other area where Air Force regulations specifically prohibit use. Containers of tobacco waste product, including sealed containers, must not be left unattended or disposed of in trash receptacles. Users of smokeless tobacco must flush tobacco waste down the toilet. Due to the nature, appearance, and safety concerns of electronic cigarettes (also known as "e-cigs"), the use of said products will abide by the same rules for tobacco products stated above and governed by AFI 40-102, *Tobacco Use in the Air Force*.

2. Supervisors at every level will ensure this policy is followed. Disciplinary action is appropriate for repeated violations.

3. Updates to this policy will be made in the future to further align with Air Force guidelines.

4. This policy remains effective until rescinded. (This policy is dated December 20, 2013)

Action Line

Team AEDC

I believe in free and open communications with our Team AEDC employees, and that's why we have the Action Line available. People can use the Action Line to clear up rumors, ask questions, suggest ideas on improvements, enter complaints or get other issues off their chests. They can access the Action Line in one of two ways: via the AEDC intranet home page, and by calling 454-6000.

Although the Action Line is always available, the best and fastest way to get things resolved is by using your chain of command or by contacting the organization directly involved. I encourage everyone to go that route first, then if the situation isn't made right, give us a chance.

Col. Rodney Todaro
AEDC Commander



Kraft, Stebbins receive 2015 ITEA Publications Award

By Raquel March
ATA Public Affairs

Dr. Edward Kraft, AEDC chief technologist, and 1st Lt. David Stebbins, at Joint Base Elmendorf-Richardson, Alaska, received the International Test and Evaluation Association (ITEA) 2015 Publication Award Aug. 20 at the ITEA 32nd Annual Symposium, Arlington, Va.

Stebbins was a former project manager for the F135 engine Accelerated Mission Testing at AEDC when he made contributions to the winning publication. The 2015 ITEA Test and Evaluation (T&E) Professional Awards Program presents this award and five others annually to individuals and groups that have made significant contributions to advancing the test and evaluation profession. The award winners are nominated by ITEA members and T&E leaders.

Kraft and Stebbins wrote an article titled "Wind Tunnel Testing in the Department of Defense," which was published in the March 2015 issue of the ITEA Journal of Test and Evaluation.

It was an introduction to the capabilities of wind tunnel facilities operated by AEDC. Additional information provided in the article included the current status of the facilities and projected changes in the future use of the wind tunnels.

Information provided on the ITEA web site regarding the article cited in the Publications Award stated that "descriptions of wind tunnels, their capabilities and locations, are seldom found in one article, and this comprehensive inventory fills a critical void."



Figure 1: The Primary DOD Wind Tunnels

Wind Tunnel Testing in the Department of Defense

Edward M. Kraft, Ph.D.
USAF Air Force Test Center
Arnold Air Force Base, Tennessee

1st Lt. David W. Stebbins
USAF Air Force Test Center
Arnold Air Force Base, Tennessee

Ground-based test infrastructure consisting of wind tunnels and propulsion system test cells has been the predominant tool for the development of aeronautical systems since the Wright Brothers. For the foreseeable future aeronautical systems, although more advanced than today, will still be the major mode for domestic and global transportation as well as for the transport of material and delivery of kinetic and non-kinetic effects for the military. Ground- and flight-test facilities will remain the primary sources of information on performance, operability, and durability for the development and sustainment of aeronautical systems. In this article, the primary Department of Defense wind tunnels used for aeronautical system development are introduced, their unique features and current status noted, and projected changes in the future use of wind tunnels.

Through a number of budget reductions and Base Realignment and Closure (BRAC) activities, all of the remaining primary Department of Defense (DOD) wind tunnels in the Major Range and Test Facility Base (MRTFB) are under the purview of the United States Air Force Test Center and maintained and operated by the Arnold Engineering Development Complex (AEDC).



Edward M. Kraft, Ph.D.



1st Lt. David W. Stebbins

Wind Tunnels in the MRTFB

Although there are a number of complementary wind tunnels in the National Aeronautics and Space Administration (NASA), US industry, and foreign countries, the eight wind tunnels included in the MRTFB have been identified as critical facilities for the development of military air vehicles. All of these facilities have been classified as either unique to the US or unique to the world because of their scale, operating envelopes, capabilities, and data quality. These facilities encompass the flight regimes from subsonic, through transonic and supersonic, to hypersonic. The operational parameters for the eight MRTFB wind tunnels are summarized in Table 1. The characteristics of each facility that makes it unique in the US or the world are summarized in Table 2. A pictorial collage of the eight US military flight vehicles, missiles, and launch systems developed in the US in the last 60 years have been

returning 165 to service is underway at AEDC. Tunnel 165 is expected to be operational again with its capacity up to Mach 2.5 in 2015. Tunnel 166 will be evaluated based on requirements.

Facility (VKE). Tunnels A/B/C, has been completely renovated in the last few years. The VKE tunnel drive motors and control systems were reworked and new starting motor drive motors and control systems were installed.

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The majority of US wind tunnels used today in aeronautical research, development, test, and evaluation were designed and commissioned in the 1950s and 1960s. These facilities remain the backbone of current development process, although they are becoming more challenging to maintain.

The design and use of aeronautics facilities must be required to maintain their influence of advances in the design of experiments application, test techniques, flow diagnostics, and

serve an increasing demand for testing hypersonic configurations. Based on over 60 years of experience, sustenance of world class facilities like the wind tunnels at AEDC requires a persistent effort. It is expected that these major infrastructure programs for several years. Therefore, AEDC is not expected to receive another test capabilities program for several years. There are smaller programs that will be utilized for future programs. AEDC's on-going efforts have been submitted to the USAF Test Investment Planning and Programming (TIPP) process for consideration. These efforts are integral to the future success of aerodynamic testing. Acceptance of the tunnels and other facilities at AEDC are of utmost importance due to the myriad of major defense acquisition programs that it supports.

Changing Paradigm for Wind Tunnel Testing

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Image is Copyright of ITEA Journal of Test & Evaluation, March 2015 and is the property of International Test & Evaluation Association (ITEA). The article is titled "Wind Tunnel Testing in the Department of Defense" by Dr. Edward Kraft, AEDC chief technologist, and 1st Lt. David Stebbins, at Joint Base Elmendorf-Richardson, Alaska.

AEDC engineers attend NATO symposium in Poland

By Deidre Ortiz
ATA Public Affairs

Two engineers from AEDC recently traveled to Rzeszów, Poland, for the 2015 North Atlantic Treaty Organization (NATO) Spring Panel Business Week (PBW).

Bryant Crowson and Adam Moon, who are part of the Test Operation Division branch, were among the 430 engineers, scientists and industry and government representatives from 21 NATO Nations and three Partner Nations to attend the conference hosted by the Applied Vehicle Technology (AVT) Panel at Rzeszów University.

Fifty-three AVT Technical Teams consisting of task groups, program committees, exploratory teams and a specialist team met during the week. These meetings included the AVT-229 Symposium on "Test Cell and Controls Instrumentation and EHM Technologies for Military Air, Land and Sea Turbine Engines;" AVT-230 Specialists' Meeting on "Advanced Aircraft Propulsion Systems;" and the AVT-241 Specialists' Meeting on "Technological and Operational Problems Connected with Unmanned Ground Vehicle (UGV) Application for Future Military Operations."

Technical discussions covered a range of topics from mechanical systems, structures and materials to performance, stability and control analysis as well as propulsion and power systems of new and aging systems.

At the conference, both AEDC engineers presented technical papers they wrote. Crowson

spoke about the F112 fan blisk damping test that was performed at the Williams International test facility and sponsored by the Air Force Research Laboratory.

Moon's presentation featured aeromechanical excitation methods for advanced test cell applications. "My paper focused on

the spin rigs that Bryan Hayes designed and the facility health monitoring that's implemented at the National Full-Scale Aerodynamics Complex," Moon said.

Crowson added this was the first time that either of them had presented at a conference-type setting. "It was a great learn-

ing opportunity to see the advancements of Non-Intrusive Stress Measurement System (NSMS), which is a method for determining dynamic blade stresses in rotating turbomachinery," he said. "It was also interesting to see the advancements in test cell monitoring work AEDC could do in the future."

When they weren't presenting or learning about advances in vehicle technology, the engineers took the opportunity to learn more about the area. "This was our first time traveling outside the U.S. for work and it was also the first time either of us traveled to Poland," Crowson said.

They also mentioned it was fun exploring and experiencing a new place and the food was delicious. "The trip was an overall great experience," Crowson said. "Everyone presented interesting topics and the local population was very friendly to non-Polish speaking Americans."



While in Rzeszów, Poland, for the 2015 North Atlantic Treaty Organization (NATO) Spring Panel Business Week (PBW) meetings, AEDC engineers Bryant Crowson and Adam Moon had the opportunity to see several historical sights. Pictured here is the Monument of the Revolutionary Act located in the center of Rzeszów. (Photo provided)

TESTING *from page 1*

the AEDC-Edwards collaboration.

“The 412th Test Wing and AEDC provided the test data and knowledge the program office needed to select the final configuration to go forward with for the remaining life of the weapons system,” he said. “AEDC continues to support the Talon through the Air Force Smart Operations for the 21st Century program, AF2021. Our recent support to the AF2021 team that improved a critical engine control component and our new way of thinking are as important as our support for the recent modernization program.”

Testing on the T-38 Talon has been taking place at AEDC since the beginning of its development. In 1958, prior to its first flight, the T-38 Talon underwent aerodynamic tests, including drag studies in the 16-foot transonic wind tunnel (16T) at AEDC. Then in the 1960s, the propulsion system for the Talon, a J85 turbojet engine manufactured by General Electric, was also tested at the Complex to verify its performance and operability.

By the late 1970s, a comprehensive Aeropropulsion Laboratory program provided more knowledge of jet engine

emissions on the environment and a J85 engine was tested using a mobile pollution detector developed by AEDC engineers.

Through a recent modification program, known as the Pacer Classic III, technicians at Ogden Air Logistics Complex’s (ALC) 575th Aircraft Maintenance Squadron at Randolph Air Force Base, Texas, completed the first aircraft in the program, with 11 more to be added to the fleet.”

Brig. Gen. Carl Buhler, Ogden ALC commander, commented on the significance of this accomplishment.

“Today is a special

day, because we get to recognize the efforts of a ton of work ... work that started several years ago. But, more importantly to me is the knowledge that this team has delivered and they met their commitment to our Air Force,” he said.

“Not only a commitment to create and stand-up this T-38 PCIII modification line, but a commitment to deliver production quality aircraft – aircraft that will have their lifespan extended until the 2029 timeframe, which will ensure pilot

training capacity for our Air Force,” Buhler added.

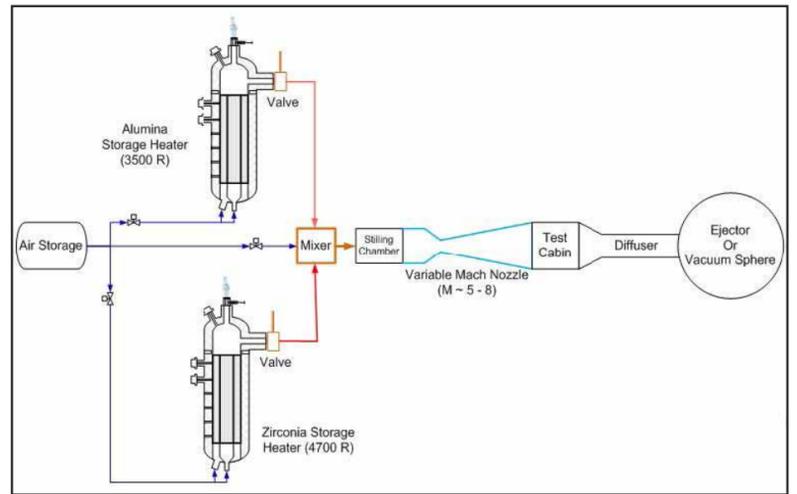
According to officials, the Pacer Classic III is the largest and most invasive structural modification ever performed on the Talon. Each aircraft modification takes approximately 8,900 man-hours.

The Air Force Sustainment Center invested nearly \$8 million on improving the program’s facilities at Randolph, a geographically separated unit under the Ogden ALC. The unit installed 11 fixtures that stabilize

the aircraft during maintenance and allow technicians to complete work on different sections of the aircraft simultaneously.

The 575th AMXS will bring in 17 additional aircraft in fiscal 2016 and plans are to complete work on more than 150 T-38s by 2021. In order to accomplish this, officials said the unit of currently 280 employees will be adding 340 more to its staff.

(Information for this release compiled from AEDC and Hill Air Force Base)

FUTURE *from page 1*

Engineers at AEDC have hit a milestone in the future of hypersonic weapons system program development with the construction and successful checkout of the Hypersonic Aeropropulsion Clean Air Testbed (HAPCAT). The configuration of the HAPCAT is shown here schematically. Metered air flows from the zirconia RSH, alumina PBAH and ambient storage towards the central ADS mixer before turning and flowing through the VMN into the test cabin. The general arrangement was selected to minimize heat loss while providing adequate mixing of the streams. (AEDC graphic)

will permit continuous transition throughout a Mach range of 4.5 to 7.5.

Tucker commented that “the success of the RSH test would not have been possible without the expertise and dedication of the entire HAPCAT development team, with members from AEDC, Aero Systems Engineering Inc., and Orbital-ATK Inc. working together to overcome many technical challenges.”

“These advanced technologies will enable a vastly improved hypersonic scramjet engine and aero-thermal test capability that will exceed any other in the world.”

Upon its completion, the HAPCAT ground test technology development facility will be large enough to test the propulsion system of an X-51 size missile in a direct connect and semi-free jet configuration. It will provide the information and risk reduction required to transition those technologies into a larger full-scale facility such as AEDC’s APTU.

Col. Tim West, Senior Materiel Leader in AEDC’s Test Operations Division, added, “Ideally, we will add a HAPCAT-type clean air system to APTU in the next three to seven

years. This capability is absolutely essential to the successful development and fielding of an optimized hypersonic weapon. Without it, developers will have to incorporate additional design margin to offset the uncertainties associated with testing in a vitiated environment, which will mean a bigger, heavier weapon that fits into fewer aircraft weapons bays and delivers less range and/or payload. HAPCAT proves we can provide the test environment needed to optimize the size and weight of tomorrow’s hypersonic weapons.”

Ward receives recognition for leadership



Rhonda Ward, AEDC Federal Women’s Program manager and budget analyst, recently received The Award for Exemplary Civilian Service from AEDC Commander Col. Rodney Todaro. The citation for the award was “in recognition of her distinguished performance as the Federal Women’s Program Manager, Arnold Engineering Development Complex, Air Force Test Center, from July 2004 to July 2015.” Ward developed and implemented special program initiatives at the Complex related to the concerns and needs of women, promoted women’s advancements, recognized women’s achievements and enhanced professional development. Ward has 29 years of service with AEDC. (Photo by Jacqueline Cowan)

45 years on alert: Minot conducts Minuteman III test launch

By Capt. Christopher Mesnard

Air Force Global Strike Command Public Affairs

BARKSDALE AIR FORCE BASE, La. (AFNS) – The 91st Missile Wing completed an operational test launch of an unarmed LGM-30G Minuteman III intercontinental ballistic missile at Vandenberg Air Force Base, California, Aug. 19, continuing its mission of providing strategic deterrence for the U.S. and their allies. The launch fell on the 45th anniversary of the day the 91st MW at Minot AFB, North Dakota, put the Air Force's first Minuteman III missiles on alert.

Working with members of the 576th Flight Test Squadron and 30th Space Wing at Vandenberg AFB, the Minot AFB team launched the ICBM at 3:03 a.m. PDT. The test re-entry vehicle impacted in a pre-established test area roughly 4,200 miles away in the Pacific Ocean near the Kwajalein Atoll.

“Launching an ICBM under operational conditions is a whole team effort, and that’s what we bring out here to replicate the scenarios in the field as close as possible,” said Lt. Col. Eric Thompson, the 91st MW Task Force commander. “The operations and maintenance crews who come out here with us know the job they’re doing back home is important, and actually coming out here to launch an unarmed missile really solidifies the job we do every day with nuclear deterrence.”

Prior to each operational test launch, operations and maintenance crews from the supporting missile wing reassemble the missile, pull alert duties and finally launch the Minuteman III.

“It’s very exciting getting the opportunity to do (the launch), but it’s definitely going to be a team effort with our Minot crews, the space wing and 576th (FLTS) all working together,” said 1st Lt. Benjamin Shea, the 741st Missile Squadron assistant flight commander. “The launch itself is going to ensure that the missile is going to do what it was designed to do, and it’s good to see that, because we don’t get this every day.”

All test launches

verify the accuracy and reliability of the ICBM weapon system and provide valuable data to ensure the platform remains a safe, secure and effective nuclear deterrent. However, this launch in particular offered a sense of longevity and persistence the mission the Minuteman III community has experienced over the past 45 years.

The former 741st Strategic Missile Squadron at Minot AFB originally brought the first

Minuteman III missiles on alert in 1970, just one day after another ICBM anniversary – the first test launch of an operationally configured Minuteman II missile in 1965. That Minuteman II launch also took place at Vandenberg AFB, stressing the role the base holds in the strategic deterrence testing and evaluation mission.

“Vandenberg has hosted the operational test launch program for over five decades, and it’s

here that we really have a chance to demonstrate the effectiveness and operational capabilities of our weapon systems,” said Col. Craig Ramsey, the 576th FLTS commander. “Putting all the pieces together, to make a launch happen, seems simple after the fact, but we have teams from Minot working with personnel from our test and evaluation squadron and the 30th Space Wing. It truly is a complex mission to get an asset from

the operational unit, add test and safety packages to it, and ensure all facets of the mission are test-ready – but it’s handled by professionals who are the best in the world at their job.”

Air Force Global Strike Command’s new commander, Gen. Robin Rand, was also on hand to see the Airmen in action for the test.

“I’m truly impressed by the knowledge, the skills and the teamwork that our Airmen demonstrated during this test launch,” Rand said. “When I think of the value of these types of tests have played over the years, I think of the mes-

sages we send to our allies who seek protection from aggression and to adversaries who threaten peace. I also think about the American people we’ve sworn an oath to protect; people like my grandchildren who count on us to get this right. We can’t let them down.”

Currently, Air Force Global Strike Command oversees the nation’s more than 400 ICBMs across Minot AFB; F. E. Warren AFB, Wyoming; and Malmstrom AFB, Montana, all of which randomly select ICBMs from their missile fields to perform operational test launches like this one.



An unarmed LGM-30G Minuteman III intercontinental ballistic missile launches Aug. 19 at Vandenberg Air Force Base, Calif. The missile was randomly selected from Minot AFB, N.D. as a part of the system’s operational test and evaluation program, which provides valuable data to evaluators and validates the reliability of the ICBM fleet. (U.S. Air Force photo/Joe Davila)

This day in espionage history

By AEDC Industrial Security

Sept. 13, 2000 – Dr. Wen Ho Lee plead guilty to mishandling classified information

Sept 16, 1993 – Steven John Lalas sentenced to 14 years in Federal prison without parole for conspiracy to commit espionage

Most Common Motivations

- ❖ Money (either need or greed) was a motivating factor in most cases
- ❖ Disgruntlement or revenge toward employer or some other person or situation
- ❖ Ideology (beliefs and sympathies resulting from cultural affinity)
- ❖ A desire to please a friend or family member
- ❖ Attracted by the “thrill or excitement” of becoming a spy
- ❖ Small percentage compelled to be recognized and feel important or were coerced

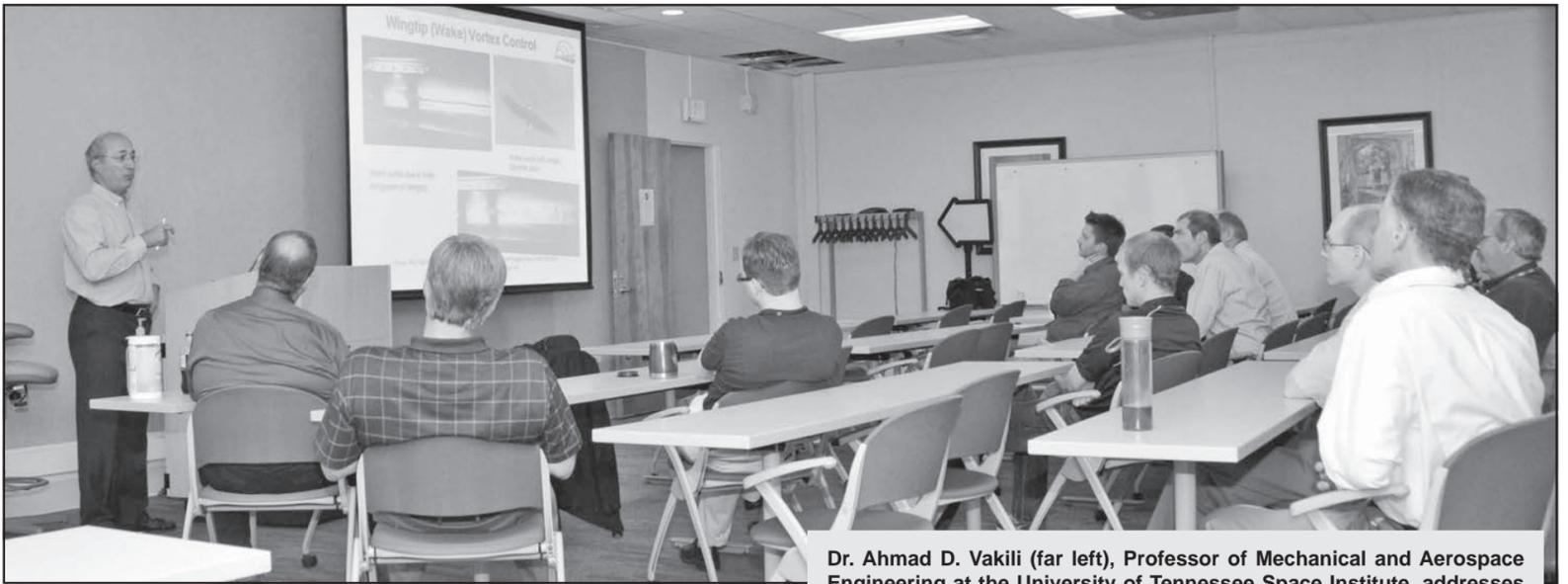
Arnold AFB
2015 VA Picnic

Arnold AFB cordially invites our local veterans to the annual VA picnic to honor the Veterans from the Murfreesboro VA hospital!

9 October 2015
11:00 am - 4:00 pm
Arnold Lakeside Center (ALC)
RSVP at aedc.se.afsa@us.af.mil
Required Information:
Name/Rank • Branch of Service • Service Dates
Last day to sign up is 30 Sep 2015

EVENT PARKING will be at the Gossick Leadership Center (GLC).
Buses will be used to transport from the GLC to the ALC every ten minutes starting at 9:00am.
Security will be assisting to ensure successful traffic flow and limited delays of party attendees.

UTSI professor presents 'Flow Control' at AEDC



Dr. Ahmad D. Vakili (far left), Professor of Mechanical and Aerospace Engineering at the University of Tennessee Space Institute, addresses participants at AEDC's Technical Excellence Seminar Aug.20 on his recent research studies of 'Flow Control'. Vakili said flow control has recently become a focus and a component of most research in various aerodynamics and fluid mechanics of advanced systems. (Photo by Jacqueline Cowan)

BREAKING BARRIERS

46th Society of Flight Test Engineers International Symposium

Presented by the Antelope Valley Chapter in Lancaster, California
14-17 September 2015

Innovators have been breaking barriers in the Antelope Valley for over 7 decades: supersonic flight, hypersonic flight, spaceflight, advanced flight controls, around-the-world flight, stealth, UAVs, and commercial spaceflight. Join flight test professionals from the Antelope Valley and around the world to discuss the latest innovations in testing aerospace systems.

For more info, visit www.sfte2015symposium.com or contact av.sfte@gmail.com

Agility, partnerships highlighted at industry event



Businesses received insight into more than 400 opportunities worth \$12.2 billion at the annual Briefing for Industry held Aug. 17-19 in Albuquerque, N.M. (Air Force Research Laboratory graphic)

By Kendahl Johnson
Kirtland Air Force Base
Public Affairs

KIRTLAND AIR FORCE BASE, N.M. – Businesses received insight into more than 400 opportunities worth \$12.2 billion at the annual Briefing for Industry Aug. 17-19 in Albuquerque, N.M.

BFI provides information to the government contracting community on upcoming and proposed acquisitions from the many and varied federal organizations operating in New Mexico. The event is sponsored by the nonprofit Professional Aerospace Contractors Association of New Mexico, led by Ron Unruh.

“It was a huge success,” Unruh said. “It’s a very unique event where networking venues are created and there are op-

portunities for dialogue between companies and those with contract opportunities.”

More than 26 federal agencies presented their upcoming opportunities, including small business innovative research projects, broad agency announcements and major acquisitions.

BFI provides a forum for potential bidders to gain knowledge and insight for a successful bid and offers opportunities to speak directly with the presenters about their programs. Air Force Research Laboratory officials called BFI one of the laboratory’s key industry outreach events to share a diverse portfolio of opportunities to help address the Air Force’s technical challenges.

Maj. Gen. Thomas Masiello, the commander of AFRL at Wright-Patterson Air Force

Base, Ohio, and opening keynote speaker, told guests the theme of AFRL’s presentations at the event were that the Air Force and the Defense Department needs to do things faster and better than ever before.

“We have to shake things up,” he said. “We can no longer be business as usual. Just because we’ve had technological superiority for the past 20 years doesn’t mean that we’ll continue to have it.”

Masiello said the U.S. is facing competition in research and development from potential adversaries, who have been making progress toward leveling the playing field. Space, cyber and the electromagnetic spectrum are increasingly contested.

“Our enemies have the ability to challenge us in ways that were never possible before,” he said. “Our greatest challenge is to be able to respond faster than our adversaries. We have to adapt and be flexible.”

The general emphasized partnerships with large and small businesses and universities, and leveraging science and systems engineering as a path to deliver advanced Air Force capabilities while lowering life cycle costs.

There were more than 430 registered attendees at the event, representing 26 states. Unruh said plans are to continue to grow and expand the annual conference.

AF emergency managers emphasize planning during National Preparedness Month

By Jess Echerri

Air Force Civil Engineer
Center Public Affairs

TYNDALL AIR FORCE BASE, Fla. (AFNS) – September is National Preparedness Month and the Air Force Civil Engineer Center is leading the charge for servicewide participation.

With a theme of “Don’t wait. Communicate. Make your emergency plan today,” this year’s focus is on emergency planning, to include development of evacuation plans and family communication plans in the event of separation.

“Preparedness is the shared responsibility of our entire nation,” said Deputy Secretary of Defense Robert Work. “Preparing individuals, families, components and installations for disasters and emergencies – from flooding to an active shooter – ensures the strength of our workforce and our ability to continue to safeguard U.S. security.”

During the month,

each week will be focused on planning for a specific hazard: flooding in week one, wildfires in week two, hurricanes in week three and power outages in week four. The month culminates in National PrepareAthon Day Sept. 30.

“Sept. 1 through 29 is more for passing out information through pamphlets or commander’s calls or other avenues bases might use,” said James Martin, the emergency management education and training analyst in AFCEC’s Readiness Directorate. “On National PrepareAthon Day, Sept. 30, we want to see bases actually conducting an activity. It could be table top exercises, drills or a wide range of other activities.”

To lessen the workload on base-level emergency management offices, emergency management experts at AFCEC put together a marketing guide with links to social media posts, graphics and techniques to disseminate information effectively throughout the month.



The Air Force is encouraging Airmen and their families to focus on emergency planning in September as part of National Preparedness Month. This year’s theme is “Don’t wait. Communicate. Make your emergency plan today.” (Courtesy graphic)

“The emphasis should be to increase the comprehensiveness of your campaign, engaging all members of your community and highlighting the importance of preparedness,

not just during National Preparedness Month, but year round,” said Harley Connors, the AFCEC emergency management division chief.

All Air Force bases are

encouraged to participate during National Preparedness Month and National PrepareAthon Day.

“It’s important to have time set aside that focuses on preparedness because

when people have the right information, they generally do the right thing when the real emergency happens,” Martin said. “It literally translates into saving lives.”



(U.S. Air Force graphic)

Air Force adopts new dragon

By Air Force Office of Information Dominance and Chief Information Officer

WASHINGTON (AFNS) – Lt. Gen. Bill Bender, the Air Force chief information officer, and Maj. Gen. Martin Whelan, the Air Force director of future operations, have partnered to increase awareness of the importance of operations security and cybersecurity to protect the Air Force mission, personnel and their families.

“We are thrilled with this new partnership,” Whelan said. “Cybersecurity is such an integral part to ensuring operations security in our Air Force. We want our Air Force personnel to understand that cybersecurity is everyone’s responsibility and that their daily actions can make or break a mission and/or put themselves and their families at risk.”

Bender agreed. “We are hoping that by pairing our OPSEC and new cybersecurity logos together it will remind personnel of the relationship that OPSEC and cybersecurity share in keeping our personnel and our mission safe.”

OPSEC has always

been an important factor in the military. The official OPSEC program launched during Vietnam in 1966 with Operation Purple Dragon. “Purple Dragon” was the unclassified nickname, given by the Joint Chiefs of Staff, for a study done on the loss of B-52 Stratofortresses in Southeast Asia. National leadership became concerned that there was a security breach since U.S. B-52 bombers were being shot down at a very high rate. It was apparent that the North Vietnamese had been gaining prior knowledge of bombing mission times and locations. Thus, Operation Purple Dragon was born and it was soon discovered that existing procedures allowed flight plans to be received directly by Hanoi.

OPSEC has since become an established process used by military, federal, state and local agencies, as well as private companies. Each year, additional businesses realize the importance of OPSEC in their day-to-day operations to help protect proprietary and sensitive information from disclosure, espionage and exploitation. Even at home, OPSEC can help protect a person’s identity, fam-

ily and home from those who strive to exploit their information for personal gain.

In today’s world, modern technology instantly enables any individual to share information around the globe. Though people may intentionally share this information with relatives and business partners they could also be unintentionally providing access of this same information to terrorist and criminal organizations. Cybersecurity and OPSEC can help protect personal and critical information. As threats around the world continue to grow, OPSEC will always be there to protect a precious commodity: information.

Today, the OPSEC (Purple) Dragon symbolizes the importance of protecting critical information and observable actions about mission capabilities, limitations and intentions in order to prevent or control exploitation by an adversary. The new Cybersecurity Dragon falls in the same family by symbolizing the importance of cybersecurity to protect and secure our personnel and their mission allowing the Air Force to fly, fight and win in a cyber-contested environment.

The OPSEC Dragon has done a superb job reminding Air Force personnel of the importance of operations security for decades. When partnered with the new Air Force Cybersecurity Dragon, the two act as a powerful reminder to help protect Air Force personnel, their missions and their families.

“Virtually every mission across the range of military operations depends on cybersecurity and every Airman has an important role to play with respect to OPSEC and cybersecurity,” Bender said. “We are much more effective when everyone plays their part.”

Arnold Base Exchange celebrates 120 years

By Raquel March
ATA Public Affairs

Arnold Air Force Base Exchange began operations in the 1960s. But Arnold Exchange employees and shoppers shared in a worldwide celebration with other Army and Air Force Exchange Service facilities in recognition of the organization's 120th anniversary July 25.

There are 2,440 Exchange facilities across the world – in 33 countries, 50 states and five U.S. territories. Arnold's Exchange is known as the Arnold Retail Store.

Theresa De Los Santos, Arnold Air Force Base Exchange shift supervisor, described the activities that took place during the celebration where AEDC Commander Col. Rodney Todaro was in attendance.

"For our 120th [celebration] at the Exchange we gave away a Go-Pro camera, a crawfish boiler and a Budweiser picture," she said. "We celebrated with a cake cutting ceremony where Col. Todaro cut the

cake."

The mission of the Exchange is to make the lives of Soldiers and Airmen better through the goods and services they offer with a motto of, "We go where you go."

Arnold Exchange offers the same items found in off-base retail stores. De Los Santos said if Arnold doesn't have an item, they can have it delivered from Fort Campbell, Ky. They also price match products.

Another part of the mission is a focus on family serving family.

During a celebration July 23 at the Exchange Dallas headquarters, Exchange Director Tom Shull commented on the mission to personnel.

"We are here celebrating 120 years because of your steadfast dedication," Shull said. "Inspired by a love of country, you go where they go. 120 years after our founding, we remain family serving family."

De Los Santos also shares the same sentiment.

"At AEDC we have a personal relationship with



AEDC Commander Col. Rodney Todaro cuts the cake at the celebration for the 120th Anniversary of the Army and Air Force Exchange Service July 25. The event was held at the Arnold Air Force Base Exchange. (Photo provided)

each of our customers," she said. "The customers we serve are retirees, veterans, active-duty and their families. We talk with them and get to know their needs. We serve the best customers

in the world and that is how they are treated when they come to the Arnold Retail Store."

The Arnold Exchange employs five people consisting of military family mem-

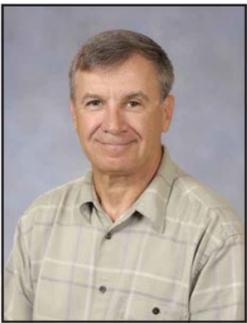


Retired Master Sgt. George Allen displays the crawfish boiler he won at the 120th Anniversary celebration of the Army and Air Force Exchange Service July 25 at the Arnold Air Force Base Exchange. (Photo provided)

bers. Approximately 26 percent of the Exchange's nearly 35,500 associates are military family members; 10 percent are veterans; and two percent are active duty, Guard or Reserve personnel.

In the past 10 years, the Exchange has distributed more than \$2.4 billion for the Morale, Welfare and Recreation Program to fund quality-of-life improvements.

Milestones



**Gene Klingensmith
35 Years**

30 YEARS
Anthony Durante, AF



**Mike Barlow
35 Years**

James Myers, AF
Christa Herron, ATA

James Thompson, ATA

25 YEARS

Darrell Booher, ATA
Jennifer Johnson, ATA
Steven Lepley, ATA

20 YEARS

Dotty Davis, ATA

15 YEARS

Kathryn Stephens, ATA

10 YEARS

Troy Caldwell, ATA
Jason Colbert, ATA
Jamie Conlee, ATA
Joseph Cowan, ATA

Cliffa Forsythe, ATA

Paul Gallagher, ATA
Michael Hollowell, ATA
Troy Jernigan, ATA
Steven Lampley, ATA
Ralph Lance, ATA
Christopher Rogers, ATA
Ollie Vincent Jr, ATA
Kenneth Wells, ATA

5 YEARS

Reggie Floyd, AF
Robert Greene, AF
Brian Hall, ATA
Calain Schuman, AF
Nissa Schuman, AF

Robert Tischart, AF

RETIREMENTS

Virginia Conry, ATA
Robert Brewer, ATA
Gail Bryant, ATA
Micheal Phillips, ATA

PROMOTIONS

Robert Brock, AF
James Evans Jr., ATA

INBOUND MILITARY

Cameron Butcher, AF
Steven Marrocco, AF
NEW HIRES
Cameron Butcher, AF

Andrew Hoekstra, AF

Joseph Ites, AF
Kenneth Keen, AF
Steven Marrocco, AF
Benjamin Mills, AF
Scott Pertier, AF
Kyle Reece, AF

GRADUATE/DEGREES

Stacey Wimberly, Master's in Business Administration
Jack Glasser, Security Asset Protection Professional Certification

ATA personnel receive awards for outstanding performance



Ronald Baucom
Craftsperson of the Quarter
 Integrated Test and Evaluation Department, Test Operations and Maintenance



Scott Wieland
Technical Excellence in Engineering of the Quarter
 Integrated Test and Evaluation Department, Engineering and Facilities Design



Joel Gregory
Administrative and Professional Support Services of the Quarter
 Test Assets and Support Department, Administrative Support



Barry Henderson
Operations and System Engineer of the Quarter
 Mission Support Department, Maintenance Engineering



Jonathan Seely
Program Manager of the Quarter
 Test Assets and Support Department, Internal Customer Program Manager



Rocco Simeri Jr.
Craftsperson of the Quarter
 Test Assets and Support Department, Plant Operations and Maintenance



Terry Hayes
Technical Excellence in Engineering of the Quarter
 Integrated Test and Evaluation Department, Science and Technology



Peter Allingham
Administrative and Professional Support Services of the Quarter
 Mission Support Department, Tech. Spec. and Admin Professional



Craig Russell
Operations and System Engineer of the Quarter
 Test Assets and Support Department, Facility Operations Engineering



Geoffrey Griffin
Customer Service of the Quarter
 Information Technology and Systems Department, Internal Customer Service



David Schlykov
Craftsperson of the Quarter
 Mission Support Department, Fuels/Utility Operations and Maintenance



William Bonson
Technical Excellence in Engineering of the Quarter
 Integrated Test and Evaluation Department, Engineering Analysis



John Leonard
Administrative and Professional Support Services of the Quarter
 Performance Management Department, Support Services



Mike Hamby
Operations and System Engineer of the Quarter
 Information Technology and Systems Department, Software Engineering



Michael Magistro
Customer Service of the Quarter
 Integrated Test and Evaluation Department, External Customer Service



Robert Knapke
Technical Excellence in Engineering of the Quarter
 Integrated Test and Evaluation Department, Computations and Software Development

Photos were unavailable for:
Timothy Orange; Craftsperson of the Quarter
 Test Assets and Support Department; Fabrication, Installation, Maintenance and Support

David Whitton Jr.; Craftsperson of the Quarter
 Mission Support Department; Emergency Services

Ellis Heim; Program Manager of the Quarter
 Integrated Test and Evaluation Department; External Customer Program Manager

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