



# HIGH MACH

Serving the World's Premier Flight Simulation Test Complex



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## Environmental conservation efforts progressing at AEDC

By Raquel March  
ATA Public Affairs

As the nation celebrates the 45th annual Earth Day this April 22, the Air Force is re-emphasizing its standing commitment to environmental stewardship and encouraging its military and civilian workforce to promote recycling both at home and on the job, and asking them to leverage available opportunities to "Conserve Today – Secure Tomorrow."

Col. James Krajewski, AEDC Test Support Division director, relates an Air Force core value to the importance of recycling.

"One of our core Air Force values is 'Service before self,'" he said. "Recycling is one of those ways we put others before ourselves, because it allows us

to ensure a healthy environment for our children and their children.

"At home, we should each separate the recyclables out of our trash and, if our county doesn't recycle for us, bring it in and put it in the Arnold recycle bins. If everyone across the AEDC did their part, we could remove over 550 pounds of trash per person per year from the landfill. That is over 1.2 million pounds of trash every year, which becomes a savings of over \$110,000 in landfill costs. Bottom line, recycling is a huge win/win for everyone on Arnold."

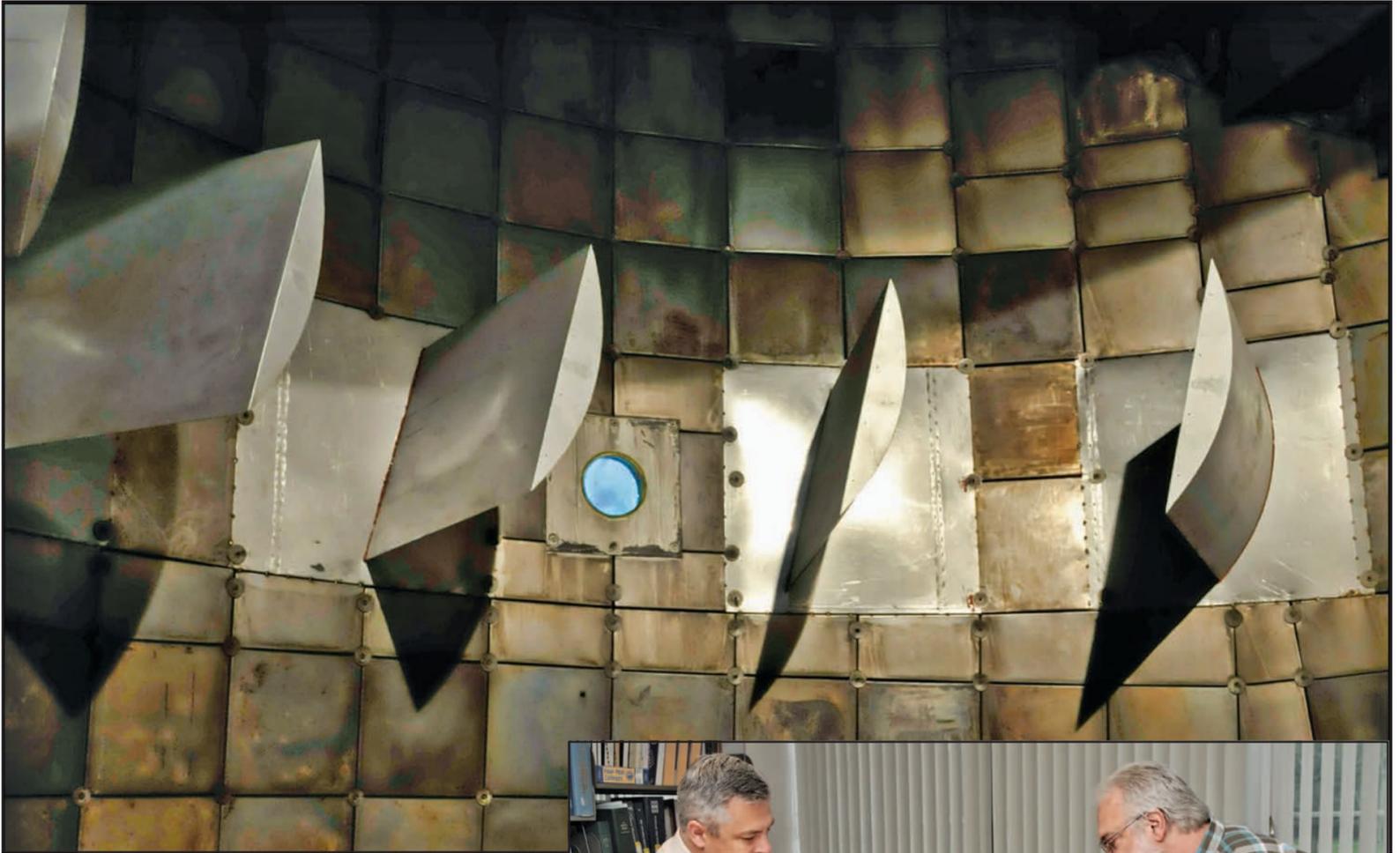
Installations across the enterprise are taking action to meet the Department of Defense's strategic sustainability performance plan goal of diverting 55

See **EFFORTS**, page 6



Doug Richards and Charles Wilkerson, with the AEDC Services Recycling Program crush steel drums for recycling at the Complex processing center. (Photo by Rick Goodfriend)

## 'Snapshots' of AEDC history displayed



This photograph of the AEDC Propulsion Wind Tunnel, 16-foot Supersonic Tunnel duct is one of the prints displayed in the Administration and Engineering building hallway as part of a history display coordinated by the AEDC Historian Chris Rumley. See additional select prints on pages 10-11. (Photo by Rick Goodfriend)

By Raquel March  
ATA Public Affairs

When you walk through the halls of the Administration and Engineering (A&E) building, a new display of photographs and drawings may be seen which depicts AEDC history and testing. This display is possible due to the coordination of the Complex historian Chris Rumley.

"Each piece is a snapshot of AEDC history showing the grand scale of our mission and our testing facilities," Rumley said. "Many of the drawings go back to the 1950s and 1960s. When each facility was in the design and planning stage, draftsmen sat down and made pencil

sketches first and then full color renditions of the proposed facilities. One of the things they did to show the scale of the facility was to draw in workers, roads and the automobiles of their era."

After speaking with AEDC Commander Raymond Toth and understanding his desire to display Air Force heritage at AEDC, Rumley thought he had an idea of the artwork that could be used.

"It just so happened, that we had a treasure trove of AEDC artwork in archive storage that had not seen the light of day for many years," he said. "I was quite happy that Col. Toth appreciated them as much as I did and that he wanted them on display."



AEDC Historian Chris Rumley (left) shows a propulsor test cell drawing from his archives to AEDC Photographer Rick Goodfriend. The drawing is one of 100 prints for display in the halls of the Administration and Engineering (A&E) building. Goodfriend digitally restored drawings, which are currently displayed in the A&E building, to their original luster. (Photo by Jacqueline Cowan)

There are 50 prints mounted on the walls of the hallways and there are 25 being framed and 25 in the production stage.

Rumley chose photos and drawings from the past, as well as the present, and selected those that had a classic AEDC look.

He enlisted the assistance of the Complex photographic laboratory photographer Rick Goodfriend to compile photographs and to restore drawings for display.

The original drawings and photographs in the historian's

collection were in decent shape, but others were a little worn. Rumley said when the drawings were first created, they were used as visual aids for briefings and presentations. The handling

See **SNAPSHOTS**, page 6



**Earth Day**  
U.S. AIR FORCE 2015  
Conserve Today. Secure Tomorrow.

# Earth Day, April 22; Reduce, Reuse, Recycle



## HIGH MACH

**Arnold Engineering Development Complex**  
An Air Force Materiel Command Test Complex

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Commander

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Public Affairs



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- Nurture, enable and treat people fairly
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  - Use disciplined and innovative processes
- Continually improve in all that we do

# Sexual assault survivor: 'You are not alone'

By Staff Sgt. Nancy Kasberg

*American Forces Network-Kaiserslautern*

## RAMSTEIN AIR BASE, Germany (AFNS)

— I remember the day like it was yesterday. My heart-beat echoed in my head as I attempted to dry my sweaty hands on my jeans. I was 21 years old, sitting in a Korean court room, waiting to be questioned by prosecutors. How I ended up there was unreal. Just a few months earlier I was happy; I had a loving husband, amazing friends and arguably the greatest job in the Air Force, but the color in my world had been stolen.

This is my story of how I was sexually assaulted.

After a year at my first duty station, I wanted to further my career so I volunteered for a short tour to Korea. I soon received an assignment to Osan Air Base, South Korea, as an American Forces Network broadcaster. It would be difficult, I knew, because my husband was unable to join me, but we agreed it was a great opportunity.

Upon arriving in Korea, I quickly learned the assignment was no easy task. The days were long and work never seemed to stop. It wasn't until half way through my tour that I finally made time to volunteer off-base with a fellow coworker. We spent the day helping members in the local community practice their English-speaking skills. After lunch, my coworker and I said our good-byes to the Koreans and headed back to base.

The taxi dropped us off at the street right in front of the base. I paid the driver, thanked him and waved good-bye to my buddy as he left to play pool off base.

Walking toward base, I noticed a button on my coat was loose, so I stopped at a tailor shop a few feet from the gate entrance. I walked in, greeted the worker with "Annyeonghaseyo," and asked if he could fix my button. He nodded and took the coat from me. When he finished, I put it on and asked how much. He kept saying no charge and proceeded to get closer to me. The next few minutes became dark. He proceeded to take advantage of me, and I just froze. I didn't know what to do; I was in shock. I couldn't believe what was happening. Once I snapped to, I ran as fast as I could toward base. I knew what had just happened to me wasn't right, and my mind and body didn't want to believe it. It felt like my brain kept telling me, there's no way it

could have happened.

But it did.

As I sat in my room, replaying the events in my head, I heard the recognizable beeping sound coming from my computer. It was my husband calling me via Skype. I answered, and realizing something was bothering me, he asked what was wrong. Hesitating, I slowly began to tell him what happened that day. I could see the anger and frustration in his eyes; he wanted so badly to hug and kiss me and tell me everything was going to be all right, but he couldn't.

The following day, I took his advice and talked to my supervisor about the events that occurred. While comforting me, she asked what I wanted to do and explained my options. We walked to the Sexual Assault Response Coordinator's office and the lieutenant there escorted me to the (Air Force) Office of Special Investigations, where they took my statement. The OSI agents were very understanding and explained that because this was a Korean national, I would have to file a report with the Korean National Police. I thought it would end there, but that was only the beginning.

The SARC informed me this would be a long procedure and recommended I use the Air Force's new Special Victims Council Program to help me through the process; I agreed.

A few weeks later, my first sergeant called to tell me that, according to Korean law, anytime a person files a sexual assault, both parties must present their account of the actions in front of a judge. "You will have to face him if you want to keep going with this," he said.

I echoed softly, "Face him?" This was the last thing I wanted.

He got quiet and then told me, "Hey, I don't agree with this system. You should never have to see him again. I will support whatever decision you make, but just know our OSI translator says most women end up retracting their statements because they're afraid of facing their assailant."

After hearing that, I knew I had to do what was right.

Soon, an Air Force captain from the SVC contacted me. As a lawyer, he would help me through any legal issues and be available for support.

Finally, the day arrived when I would have to face the man who assaulted me. At the Korean National Police Station, we would argue the truth over that

day's events.

My first sergeant and commander drove in from Seoul to accompany me. Before leaving the office, my commander talked to me. He asked me how I was doing and if I was ready. But I will never forget what he told me next, "I have to tell you that I really admire what you're doing. It takes a lot of guts, so let's go out and (seek justice for what has happened to you)."

We pulled up to the police station and an officer escorted us into a room. The door opened and I saw my assailant. Next to him was an empty chair where the officer signaled me to sit. Shaking, I managed to take my seat at which time my assailant starts yelling. There was no need for translation; my interpreter told me he was accusing me of lying and trying to ruin his marriage.

I left the room momentarily to try and compose myself. I took a deep breath and looked in the mirror. I had been so stressed for the past two months and it reflected in my physical appearance. My skin had broken out from my face all the way down to my chest. But I knew in my heart what happened that day; I wasn't a liar. I closed my

eyes and prayed to God for strength.

I made my way back into the room. I looked around at all the people who came out to support me — my commander, first sergeant, station manager and OSI translator and, for the first time in a long time, I felt safe. I remained as calm as I could and answered the questions asked of me, despite my offender being a few inches away and constantly yelling at me and my interpreter.

This was, by far, the hardest thing I've had to face in my life.

Weeks went by before we heard anything. The judge decided to take my case to court. I would have to testify again, except this time no one was allowed in the court room with me.

My special victim's counselor walked me to the door of the court room. Then a Korean officer took me in and motioned me to sit in a chair that had been placed in the middle of the room. I looked around; no one sat in the pews and there was no jury — just a judge, an interpreter and a transcriber. They all stared as the prosecutor approached me. I was the victim, yet somehow, the room, the glares, the questions, all made me feel as if

I was the offender.

A month later, I was told the judge had found my assailant guilty. It was a huge relief, not only for me, but for others as well. I learned I wasn't alone; many others on base came forth and said they, too, had experienced harassment from this man. The Air Force put his shop off-limits, helping to ensure others wouldn't fall victim to the same crimes.

Throughout the four-month ordeal, my Air Force and Army family stood by my side. My special victim counselor helped me through every step of the legal process, despite being stationed in Japan. To this day, he continues to check up on me from time to time. OSI volunteered an agent familiar with Korean law to translate and advise my counselor and me on the next step. Everyone in my chain of command, my fellow Airmen and Soldiers all the way up to the Pentagon, showed sincere and personal support.

Today, with the love and support of my family and friends, my wound is slowly healing. I hope that, in sharing my story, people may find comfort in knowing that no matter where you're serving, despite being away from everything you know, you are not alone.

**Sexual Assault Awareness and Prevention Month**

**ELIMINATE SEXUAL ASSAULT**

**KNOW YOUR PART DO YOUR PART**

For additional information:  
[sapr.mil](http://sapr.mil) [safehelpline.org](http://safehelpline.org)

April 2015

## 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. Raymond Toth  
AEDC Commander

# Remembering the service of Doc Barnes at AEDC



Dr. William "Doc" Barnes

By Deidre Ortiz  
ATA Public Affairs

Dr. William "Doc" Barnes, a U.S. Air Force veteran who also served as a civil servant at AEDC, passed away April 3.

Barnes dedicated eight years of service to AEDC and retired on Nov. 21, 2014 as the lead information technology specialist and deputy

of the AEDC Test and Communication Branch.

During his retirement ceremony, family and friends remembered his total 53 years of service to the United States.

Barnes received a computer engineering degree at the age of 18 from North Carolina State University followed by his commitment made to the Air Force

where he finished Officer Training School. After training at the John F. Kennedy Special Warfare School, he became a fully operative para-military operations officer for the Central Intelligence Agency.

Barnes was the third Air Commando in Air Force history, was a qualified para-jumper and completed Green Beret training. His

training gave him the opportunity to experience important operations involving raids, sabotage, spy and counter-spy missions, guerrilla warfare, counter-terrorism and rescue missions. He executed over 1000 missions that took him to approximately eight countries.

Barnes retired from the Air Force in 1988 at the rank of chief master sergeant with

29 medals for his service and personal achievement.

His funeral service is scheduled for 2 p.m., April 25 at the Midway Free-will Baptist Church in Clarkrange, Tenn. In lieu of flowers, the family is asking that donations be sent to a charity. The specific organization to which the donations will be made is still being determined.

# AFTC enterprise foundation set as Bunch prepares to depart

By Rebecca Amber  
Edwards Air Force Base  
Staff Writer

EDWARDS AIR FORCE BASE, Calif. —

Maj. Gen. Arnold Bunch Jr., Air Force Test Center commander, stood before members of the Edwards workforce and gave his last commander's calls at two separate times April 7 in the base theater. Bunch recognized the AFTC annual award winners and congratulated the test wing on a "fantastic job" in the enterprise-wide Unit Effectiveness Inspection last month. The enterprise was rated "highly effective" across four major-graded areas: managing resources, leading people, improving the unit and executing the mission.

Moving forward, Bunch shared that finding the balance between efficiency and effectiveness will become even more challenging, particularly if sequestration hits again. He asked each person in the room to ask themselves everyday if there is a better, cheaper, or faster way to accomplish the task at hand.

One big issue that Bunch expects to see grow in the coming years is cyber security and resiliency. After performing tests on the F-16 Block 25/30/32 in the Integration Facility for Avionics Systems Testing (IF-AST), Bunch believes there is potential to see a cyber test group formed within the next two years to address this growing need.

Bunch stressed the importance of keeping an enterprise-centric perspective.

One successful enterprise solution is seen in HALAS, the High Altitude LIDAR (light detection and ranging) Atmospheric Sensing instrument. The program started at Arnold Air Force Base, Tennessee, the data were collected at Edwards and shipped back to Arnold for evaluation.

Another enterprise example was accomplished a few months ago. An F-16 Inter-range data systems demo mission was flown over the sea test range at Naval Air Station Point Mugu, California, and controlled by a team in an Eglin AFB, Florida, control room. With less than a 300 millisecond lag, the data were sent to a control room at Eglin and analyzed in real time. The next step is to stand up a mission at Eglin, feeding the data into a control room at Edwards. The goal is to be able to utilize the engineering expertise, instrumentation, aircraft and aircrew across the enterprise.

"This is what the center and enterprise was established to accomplish on a routine basis," he said.

Partnerships are also important to the success of the enterprise. Bunch recently participated in a "ribbon-joining" at Arnold AFB along with the U.S. Air Force Research Laboratory. The Arnold Engineering Development Complex is now the site of the AFRL High Speed Experimentation Branch.

"This is not just a benefit to Arnold, but also to Edwards and Eglin, because the data that Arnold collects early on with AFRL feeds into what we're going



Maj. Gen. Arnold Bunch Jr., Air Force Test Center commander, gave his last commander's call April 7 in the base theater. Bunch will head to the Pentagon in June to serve as Military Deputy, Office of the Assistant Secretary of the Air Force for Acquisition. (U.S. Air Force photo by Rebecca Amber)

to flight test at those locations."

Two focus areas for the test center are the F-35 Joint Strike Fighter and KC-46 tanker programs, and developing the test capabilities (test techniques, intellectual capital, facilities) of tomorrow to fully test future technologies. To execute these programs and develop these capabilities, the test center must work together to identify and communicate limiting factors so senior leaders can appropriately direct re-

sources, he said.

Bunch concluded his commander's call with a few inspirational reminders. The first, a video pulled from the archives of an F-111 spin eject test was a great example of why the test community exists - to ensure that when technology reaches the battlefield, it's safe.

"I don't want a lieutenant over [a combat zone] being a test pilot - that's our j-o-b," said Bunch.

The test center performs test in an extremely disciplined manner with preparation done to mitigate as many safety risks and hazards as possible. One successful test program is

the Auto Ground Collision Avoidance System, which was fielded last year after half-a-decade of testing.

"It's a system designed to prevent perfectly good airplanes and perfectly good people from flying into the ground."

If a pilot's attention is diverted, he/she is task-saturated, or he/she loses consciousness in flight, the aircraft will fly away from the ground ensuring that both the pilot and aircraft are safe.

"Because of the work put in by the wing and the enterprise over the last five to seven years, we now have a system that's out there that can save the

pilot," said Bunch. "The aircraft can save the pilots versus the pilots saving the aircraft and that's a great thing."

By the time he leaves in June, Bunch will have spent more than 12 years of his military career at Edwards AFB.

"Edwards holds a special place in my heart, and the world of test holds a special place in my heart. Every one of you does a phenomenal job. From Mrs. Bunch and I, thank you for your great support, thank you for being our friends and our compadres and thank you for letting us work for you over the last three years."

## Congressman DesJarlais views AEDC progress



Congressman Scott DesJarlais (second from left) tours the Propulsion Wind Tunnel 16-foot Supersonic Tunnel at AEDC during a visit on April 8. The wind tunnel test aerodynamic flows for flight systems and has a capability of achieving Mach speeds up to 4.75 or approximately 3,000 mph. DesJarlais also visited the von Karman Gas Dynamics Facility, the Arc Heater Facility and the Space Threat Assessment Testbed to see facility capabilities and upgrades. Pictured with DesJarlais, left to right, is AEDC Propulsion Wind Tunnel Test Branch Technical Director Wayne Hawkins, DesJarlais' staff member Isaiah Robinson and AEDC Commander Col. Raymond Toth. (Photo by Jacqueline Cowan)



# Sexual Assault Prevention

## Chief Notes Progress, Need for More

By Jim Garamone  
DoD News, Defense  
Media Activity

**WASHINGTON** – There has been progress in the Defense Department's efforts against sexual assault in the military, "but we have to keep hammering away at the problem," said Army Maj. Gen. Jeffrey Snow. "This is going to take time."

Snow leads DoD's Sexual Assault Prevention and Response Office, and while he said he's encouraged at signs of progress, he's not satisfied.

"This evil undermines the trust that holds our military together," the career infantryman told DoD News. "It is morally wrong, and instances of sexual assault can also have an impact on readiness – on individuals, certainly, but also on units."

Snow is monitoring 50 initiatives put in place by past Defense secretaries Leon Panetta and Chuck Hagel. "These initiatives changed how the military prevents, responds to and prosecutes sexual assault crimes," Snow said. "I'm encouraged that Secretary [Ash] Carter has already announced his commitment to keep this program aggressively moving forward."

Progress is undeniable. The most recent data, gathered last year, shows

the past-year prevalence of sexual assault is down significantly, Snow said. Estimates indicate there were 6,000 to 7,000 fewer sexual assaults in 2014 than in 2012.

### Encouraging Trends

While there were fewer sexual assaults, more of them were reported. "There was an unprecedented 50 percent increase in victims choosing to report the crime in 2013," he said. "Last year ... even more chose to report." This means authorities received reports from one in four victims in 2014 – up from 1 in 10 in 2012.

Changes in the military justice system give commanders the tools they need to fight the crime. They also expand legal representation and protections for victims' interests, rights and privacy, Snow said.

Overall, he said, 10 of 12 DoD-charted metrics demonstrate progress in sexual assault prevention and response.

The department-wide climate survey conducted by the Defense Equal Opportunity Management Institute found that most service members highly rate their commanders' efforts to promote a healthy climate and discourage inappropriate gender-based behavior.

"We need to continue training efforts, information campaigns, whatever it takes to continue making progress," Snow said.

### 'Troubling' Figures on Male-victim Assaults

Addressing sexual assaults against men is particularly challenging, he said. Given the preponderance of males in the military, the estimated number of men experiencing a sexual assault is actually higher than the estimated number of women – roughly 10,000 to 8,000, respectively. However, reporting of the crime shows an even greater disparity. Officials estimate about 10 percent of victimized military men report their assault, while roughly 40 percent of victimized military women report.

The department is developing new ways to reach out to men who have been sexually assaulted, Snow said. Officials are looking at special information campaigns and special training for police, prosecutors and medical personnel, so they can recognize the signs of assault and act upon them, the general explained.

### Driving Forward Against Sexual Assault

It is the department's goal to encourage greater reporting, as a way to pro-

vide victims with assistance and to hold offenders appropriately accountable, Snow said. An unrestricted report allows a victim to get help and participate in the military justice process. Restricted reports do not trigger a criminal investigation or command notification, but do allow victims to confidentially get help, Snow said.

"Our response system is designed to build a victim's trust in the system and deliver immediate care while assisting with restoring resiliency after a sexual assault," he said.

An outgrowth of the increased emphasis on the crime is an increased focus on combating retaliation, Snow said.

"Our victim and population-based surveys look to capture the kinds of stressors military members experience so that responders throughout

the department can better meet their needs," he said. "But we have more to do if we are going to keep people reporting this crime. We've found that service members can often perceive 'social retaliation' from peers after reporting."

While these acts aren't always criminal, Snow said, "they certainly can add to a victim's feelings of alienation and complicate someone's recovery."

Sexual assault prevention and response officials will continue to drive forward, Snow said. "We will keep working with people inside and out of the military to take on this problem," he added.

Research indicates that sexual assault happens less often in commands with good climates and low rates of related problems, such as sexual harassment, he noted. Snow added that

prevention of sexual assault relies heavily on individuals' efforts to take action if they see a situation at risk for sexual assault or disrespect being shown to a fellow service member.

He praised federal lawmakers for all they have done to highlight the crime and for the tools they have given the military to combat it.

Still, he said, the road ahead is not easy and will take time. "It's not successful until that last private in the smallest unit understands that sexual assault is a crime and that he or she will be held accountable for promoting a culture of dignity and respect," Snow said.

"We want service members to not only identify risky situations, but also to intervene and demonstrate social courage when they encounter inappropriate behavior."



**AS AN AIR FORCE CIVILIAN, WHERE CAN I FIND HELP?**

*We all face challenges, but we don't have to face them alone.*

**IF YOU NEED HELP WITH... TRY THESE AGENCIES & THEIR RESOURCES**

<b>ALL EMPLOYEES</b>		
Suicide prevention	National Suicide Prevention Lifeline American Association of Poison Control Centers	(800) 273-8255 (800) 222-1222
Mental health & substance abuse	Centerstone	(931) 461-1300
Unplanned pregnancy	Crisis Pregnancy Assistance Center	(931) 728-6440
Health and Safety Education	American Red Cross	(615) 893-4272
<b>MILITARY</b>		
Virtual extension of installation services	Military One Source	www.militaryonesource.com
Health & wellness planning	AFMC Wellness Support Center Health and Wellness Center	www.afmcwellness.com (931) 454-6440
Sexual assault & victim advocacy	Sexual Assault Response Coordinator	(931) 581-7494
Finances & work-life balance	Airman and Family Readiness Center	(931) 454-4574
<b>DOD CIVILIAN</b>		
Health & wellness planning	AFMC Wellness Support Center Civilian Health Promotion Services	www.afmcwellness.com (931) 454-6440
Work, personal or family issues	Employee Assistance Program	(800) 222-0364 www.fob4you.com
Sexual assault & victim advocacy	Sexual Assault Response Coordinator	(931) 581-7494
Crime victim advocacy	Victim Witness Assistance Program	(931) 454-4567
<b>ATA EMPLOYEES</b>		
Work, personal or family issues	Employee Assistance Program	(866) 828-6049



**Dr. Mary Lou Apple, president of Motlow State Community College**

# AEDC personnel recognized at UTSI graduation reception

**By Raquel March**  
ATA Public Affairs

The University of Tennessee Space Institute (UTSI) will host a reception for UTSI graduates in the main lobby of the Academic Building on May 4 at 3 p.m.

Four AEDC personnel are part of the graduating class. They are: Joshua Hartman, Summer 2014 graduate – Master of Science in

mechanical engineering; Reginald Floyd, Fall 2014 graduate – Master of Science in mechanical engineering; Brent Rodgers, Fall 2014 graduate – Master of Science in mechanical engineering; and Richard Kirkpatrick, Spring 2015 graduate – Master of Science in aerospace engineering.

The speaker for the reception is Dr. Mary Lou Apple, president of Motlow State Community

College (MSCC).

Apple is the fifth president of MSCC. Under her leadership, Motlow was recognized as one of the 50 top community colleges and one of the fastest growing community colleges in the nation by *Community College Week*, and received the Excellence in Business Ovation award from the *Cumberland Business Journal*.

Apple was recognized by *Murfreesboro Magazine* as one of the Ten Most Influential Business Women in Rutherford County. She was also recognized by the Tullahoma Chamber for the 2015 Inaugural Women Impacting the Community for her work in education.

To attend the reception, make reservations by calling 393-7234.

# DARPA uses open systems to boost airpower

**By Cheryl Pellerin**

*DoD News, Defense Media Activity*

**WASHINGTON (AFNS)** – The Defense Advanced Research Projects Agency (DARPA) is unveiling a new program to boost U.S. air superiority by separating payloads such as weapons and sensors from the main air platform, and using open-system architectures to seamlessly integrate plug-and-fly modules into any kind of platform.

The program, called System of Systems Integration Technology and Experimentation (SoSITE) aims to develop and demonstrate concepts for flying combinations of aircraft, weapons, sensors and mission systems that distribute air-warfare capabilities across interoperable manned and unmanned platforms.

The DARPA vision is to integrate new technologies and airborne systems with existing systems faster and at a lower cost than advanced adversaries can counter them, said Dr. Nils Sandell Jr., the director of DARPA's Strategic Technology Office.

"We feel that the (Defense) Department is facing some significant technical challenges," he said.

### Threatened technological lead

"I talk to my friends and neighbors, and they take it for granted that (the United States) has air superiority and that we can impose our ability to project power anywhere we want to," he said, adding that high-end poten-

tial adversaries have been systematically developing their own equipment and systems.

"Our technological lead is definitely threatened," Sandell said. "The threats are not only external but also self-inflicted by the extreme degree of complexity being crammed onto massive military platforms.

"Our systems are becoming so complex, so time consuming to produce, that we can't keep pace with commercial technology and we can't keep pace with the threat," the director said.

Because fielding or upgrading advanced airborne systems can take decades and cost billions of dollars, he added, it has not been possible to modernize subsystems in the complex platforms apace with rapid advances in commercial technology.

### System of systems

"A system-of-systems approach could help overcome (the) inherent issue with high-cost, monolithic, multifunction platforms," Sandell said.

Distributed air warfare platforms have other advantages, he added.

"What we would like to enable is a future scenario in which a smaller number of manned aircraft would combine with unmanned aircraft to do (a) total job," the director said. "They would be networked together ... and the unmanned aircraft could venture into the more dangerous territory, providing some degree of risk avoidance for the pilots."

The unmanned platforms would be simpler and could do individual jobs like carry weapons, electronic warfare systems or sensors – the last allowing the manned aircraft to be silent and harder to detect, he said.

### Distributed air warfare

"The fundamental idea is to take platforms that today are manned, monolithic and expensive, and distribute the capability over a much more heterogeneous set of platforms to perform similar functions," Sandell said.

In such a configuration, the pilot becomes a battle manager, deciding what the small aircraft should be doing and how to orchestrate it. DARPA has a suite of programs whose automation is designed to help pilots with the task.

"We've recently come out with (a program) called Distributed Battle Management, and that's exactly to provide the automation and decision aids to enable a pilot to be able to fly his jet and do these future tasks," Sandell said.

It's also important that the pilot is the decision maker, he added.

### Communications in Contested Environments

"We're not talking about a totally robot army or something like that," Sandell said. "The pilot has to be able to exert control (and) to be in communication with these platforms, so we have a communications program called Communications in

Contested Environments that's working the issue of getting these platforms to talk to one another."

DARPA's vision is that the combination of robust communications and automation will be sufficient to allow the pilot to do those tasks, he added.

Sandell wants to be clear that DARPA is not trying to replace air platforms like the F-35A Lightning II or the F-22 Raptor, but rather to augment their capabilities.

"(The monolithic platforms) are going to be expensive," he said. "We probably won't be able to buy as many of them as we would like to if history plays out, so we want to be sure that the services, who ultimately make decisions about what to buy, (have) an enriched set of options as they go forward."

### Open-architecture approaches

For the SoSITE program, a second focus involves DARPA and the services' engagement in open-architecture efforts to allow platforms to be upgraded with equipment that seamlessly plugs and plays.

Sandell said the legacy approach, which often involves a yearlong process to agree on standard interface, can limit the ability to integrate new technology that doesn't fit within that interface. By contrast, open-architecture tools more easily allow the integration of new technology when it comes along.

The Air Force has an effort called Open Mission Systems, and DARPA is collaborating closely with them, Sandell said. The Navy has an open-architecture effort called Future Avionics Capability Environment that DARPA works with,

and they have recently shown impressive accomplishments.

### SoSITE program phases

The SoSITE program has two phases, and it is now in the two-year-long first phase, which has two technical areas.

TA1 is architecture analysis, and TA2 is integration technology. The program is less than a quarter of the way through the first phase. In the second phase, the plan is for the two Phase 1 technical areas to come together for the program's experimentation portion.

According to DARPA, the agency has awarded contracts to develop concepts for system-of-systems architectures and tools for rapid integration and testing.

Under those contracts, Boeing, General Dynamics, Lockheed Martin and Northrop Grumman are developing and analyzing promising architectures and designing plans for flight experimentation with the architectures.

Apogee Systems, BAE Systems and Rockwell Collins are developing tools and technologies to enhance open-system architecture approaches.

### Robustness against cyberattack

One of the limitations of open architecture is that it provides what Sandell said is known as "an increased attack surface" for cyberattacks.

"What we're doing on our program, in our development of system-of-systems integration technology, is building robustness against cyberattack into the design process, as opposed to putting it in as an afterthought," the director

said.

This involves things like building software into the system that is located in random places in memory so an attacker won't know where to go to find it.

"There are techniques of that type we're building into the process," Sandell said.

Of the three contractors who are developing techniques to better integrate system of systems, at least two of them are addressing the cyber problem and coming up with all sorts of techniques, he said.

### Looking to the future

"They draw on our (Information Innovation Office) folks here at DARPA, the primary folks who do cyber, so we're not doing research on cyber so much as making sure the state of the art in cyber protection is built into the system of systems design process," he added.

Looking to the future, Sandell said that monolithic but sophisticated platforms like the F-35 probably will continue to have very high value.

"I think they will be part of a family of systems or of a system of systems and not single silver-bullet solutions by themselves," he said. "In particular, we think that any of the future platforms would be designed in much more of an open-architecture fashion, so although the platform may last for a long time and take a while to develop, the electronics in it can be upgraded much more rapidly."

Sandell believes, in a sense, "the F-35 is the last of a kind. I don't think we'll develop anything that tightly integrated in the future."

## What's in YOUR cellphone?

35,274 pounds of copper

33 pounds of palladium

75 pounds of gold

772 pounds of silver

For every 1 million recycled



## This day in espionage history

**By AEDC Industrial Security**

severe personality disorders

April 20, 1992 – Ronald Hoffman sentenced to 30 months in prison for violations of the Arms Export Control Act.

April 28, 1994 – Aldrich Ames and his wife, Rosario Ames, plead guilty.

April 24, 1990 – Charles Edward Shoof sentenced to 25 years imprisonment for conspiracy to commit espionage.

April 29, 1993 – Jeffery Eugene Gregory arrested for selling secrets to Hungary and Czechoslovakia.

April 27, 1990 – Frank Arnold Nesbitt sentenced to 10 years in a psychiatric treatment facility.

**Jeffery Eugene Gregory**

- ❖ U.S. Army Staff Sergeant
- ❖ Member of a spy ring that sold U.S. and NATO military secrets to Hungary and Czechoslovakia
- ❖ Ring Leader, Clyde Lee Conrad, convicted of high treason in 1990 and sentenced to life in prison
- ❖ Ring member, Roderick James Ramsay, sentenced to 36 years in prison
- ❖ March 28, 1994, Gregory pleaded guilty to espionage
- ❖ June 3, 1994, Gregory sentenced to 18 years in prison

**Frank Arnold Nesbitt**

- ❖ Marine and Air Force communications officer
- ❖ Oct. 14, 1989, arrested and charged with delivering unauthorized information to the Soviet government
- ❖ Stayed 11 days in Moscow, wrote from memory 32 pages detailing U.S. defense communications
- ❖ Offered his services as a double agent to the FBI claiming he did not give the Soviets any useful information
- ❖ April 27 sentenced to 10 years in psychiatric treatment facility for

May 2, 1989 – Thomas Joseph Dolce sentenced to 10 years in prison for espionage.

# Earth Day 2015 Recycling Facts

- Recycling just **48 cans** is the energy equivalent of conserving **one gallon of gas**
- Since 1990, the paper recovered through U.S. recycling efforts would fill **200 football stadiums** to

- a height of **100 feet**
- The most recycled consumer product in America is the **automobile**, with **26 cars being recycled every minute**
- Every ton of recycled paper saves **17 trees** and

- 462 gallons** of oil
- **One pound** of newspaper can be recycled into **6 cereal boxes** or **egg cartons**
- In the U.S., we toss more than **100 million cell phones** in the trash every year

- EPA reports that over **112,000 computers** are discarded every single day, in the U.S. alone. That's **41.1 million** desktops and laptop computers per year!

- Only **30%** of electronic waste is disposed of and recycled properly

- Recycling just **one aluminum beverage can** saves enough energy to run a **100-watt bulb** for

- 20 hours**, a computer for **3 hours** or a TV for **2 hours**

- Recycling **125 aluminum cans** saves enough energy to power one home for a day

- Recycling one ton of cardboard:

- Saves **390 kWh** of energy
- Saves **1.1 barrels (46 gallons)** of oil
- Saves **6.6 million BTUs** of energy.

- If everyone in the U.S. was able to reduce their **10.8 pieces of junk mail** received each week, we could save nearly **100 million trees** each year.
- If every household in the U.S. replaced one roll of non-recycled paper towels with a roll of **100% recycled paper towels**, we would save **864,000 trees** and **3.4 million cubic feet of landfill space**.
- If **10,000 people** switched from zero to 100% post-consumer recycled office

paper for a year, the collective annual impact is equivalent to **taking 230 cars off the road** for a year

- A typical disposable lunch, with items like single-serve yogurt, Ziploc bags and juice boxes, creates 4 to 8 oz. of garbage every day. In a year, this could generate up to **67 pounds of waste!**
- Between Thanksgiving and New Year's, Americans throw away one million extra tons of garbage every week
- The average U.S. citizen uses **200 pounds of plastic per year** and **only 3% is recycled**. Glass makes up 6% of all the items in a landfill and it takes over 1 million years to decompose
- An average of **220 tons** of computers and other e-waste is dumped annually

For more information on the Air Force's Earth Day efforts, visit <http://www.afcec.af.mil/news/earthday>



## Earth Day

U.S. AIR FORCE 2015

Conserve Today. Secure Tomorrow.

### EFFORTS from page 1

percent of non-hazardous solid waste, and 100 percent of electronics waste, this fiscal year and beyond.

"This is the highest diversion goal in the history of Air Force diversion efforts," said Nancy Carper, subject matter expert on integrated solid waste management at the Air Force Civil Engineer Center.

Meeting these goals requires diligence and participation from everyone, from the recycling center manager looking for new ways to expand services, to office workers taking advantage of all available opportunities to recycle and not throwing out items like paper, plastic, aluminum cans and cardboard, Carper said.

Under the AEDC Services Recycling Program, recycle containers for mixed paper, cardboard, aluminum cans, and certain plastics are provided in convenient locations at most facilities on base. Collection and pro-

cessing of recycled materials is handled by the "Green Team," managed by Robbie Evans and supported by team members Doug Richards and Jennifer Garner.

AEDC has a limit on the amount of garbage that goes into landfills and is penalized \$210 per ton for disposal of trash collected in dumpsters above that limit. Recycling keeps the Complex within limits. On average, the team collects and recycles 280 tons of cardboard, 175 tons of paper, eight tons of plastics, and two tons of aluminum. There are two multi-purpose recycling locations at AEDC – one behind the Administrative and Engineering Building (A&E, building 100) and the other is at the Arnold Village, near the ball field and Services Marketing/HRO, building 3055, Westover Road. Glass may also be brought to the bins outside the Recycle Center, building 1426.

In an age of growing

technology, the need for effective electronics recycling has garnered national attention.

While all Air Force-owned electronic equipment is required to be recycled through Defense Logistics Agency Disposition Services, the Air Force is encouraging its workforce to take proactive steps to keep home electronics out of the waste stream and is encouraging individuals to take advantage of the U.S. Postal Service's Blue Earth Federal Recycling Program. Established in 2013, the program makes it easier for individuals to recycle personally owned ink cartridges and unwanted electronic devices free of charge using the postal network.

Personnel can send eligible electronics items through the mail to a certified recycler at no cost. Upon receipt, data is wiped from the devices to ensure privacy and information protection.



AEDC employee Kraig Smith (center) demonstrates the use of the new Earth Machine compost bins to the Compost at AEDC program volunteers. Funded by an Air Force Innovation Grant, the natural decomposition compost program helps AEDC personnel reduce the amount of compostable items delivered to the landfill from AEDC. (Photo by Jacqueline Cowan)

The Complex excess property office recycles electronic waste including computer equipment and monitors.

AEDC also recycles hazardous waste through the Defense Logistics Agency Disposition Services, including items such as batteries to mercury-contaminated lamps.

"During calendar year 2014 AEDC shipped 79,117 pounds of hazardous waste," said James Hicks, with the ATA Safety, Health and Environmental Branch. "Of this total, 46,951 pounds went to designated facilities to recover solvents by distillation, metals by smelting, and waste fuels by blending the recoverable petroleum fractions."

New to the AEDC recycling efforts is the Compost at AEDC program which began in February. Funded by an Air Force Innovation Grant, the natural decomposition compost program helps AEDC personnel reduce the amount of com-

postable items delivered to the landfill from AEDC, as well as tipping fee costs.

The idea was proposed by Annie Clements, a systems analyst and developer with the ATA Information Technology and Systems Department.

The program includes 75 Earth Machine compost bins and they will be placed at up to 47 buildings at the Complex as more Green Team captains volunteer for the program.

The bins, which measure 33 inches in diameter and 33 inches in height, can hold 80 gallons of compost. The resulting nutrient-rich compost is available to employees participating in the program for gardening and landscaping.

Clements included in the grant proposal an exchange of knowledge with surrounding counties to extend the composting program. The City of Tullahoma recently announced a composting program and offers a limited supply of free

composting bins to the city's residents.

Clements said, "Included in this grant are plans to contact Franklin, Coffee, Moore, Wilson, Cannon and Bedford County municipalities in order to encourage our surrounding government entities who house most of our AEDC team to encourage and introduce composting to compliment and extend the impact of the Compost at AEDC program."

This year, the Air Force is once again asking Airmen and their families to log on to the "Blue Acts of Green" Facebook page at [www.facebook.com/blueactsof-green](http://www.facebook.com/blueactsof-green) to share recycling and other environmentally-friendly practices they commit to perform everyday as well as learn what other families are doing across the country to protect one of Earth's most precious natural resources.

For more information on the Air Force's Earth Day efforts, visit <http://www.afcec.af.mil/news/earthday>.

### SNAPSHOTS from page 1

of the drawings left finger prints and stains. In other drawings the colors faded or the borders that were glued on fell off and caused discoloration.

"The goal was to recreate the prints and preserve our archive of originals," he said. "The originals were really too big for any scanners we had, so Mr. Goodfriend offered to make high-resolution photographs of each drawing over in the photo lab."

Goodfriend said he photographed the drawings and

then he digitally restored them to their original luster.

Rumley admits that it was a challenge to print the recreated drawings due to the colors not showing true. After making adjustments with lighting, camera settings and printer settings, the end product was a result they both liked. Rumley said that Goodfriend "just did an amazing job from start to finish."

Goodfriend also photographed some of the facility images which are currently displayed.

"AEDC has really been blessed over the years with some amazing artists and photographers who were dedicated to their craft," Rumley said. "You will see some of those names signed on the artwork. Don Northcutt, F. Hueser and R. Jennings signed some of their work, but many of the pieces are not signed. People will also be familiar with the photographs taken by Mr. Phil Tarver during his years at AEDC, and those taken by our current photographer Mr. Rick Goodfriend."



# AEDC Woman's Club presents musician/songwriter John Rickman at May meeting

By Barbara McGuire  
AEDC Woman's Club

The AEDC Woman's Club (AEDCWC) will be electing and installing the new officers for 2015-2016 social year during the May 5 meeting at the Arnold Lakeside Center. This is the 62<sup>nd</sup> year of existence for the AEDCWC.

The program will be presented by John Rickman, a songwriter, singer, guitarist and comedian. He is one-third of the music group "Us Two and Him." Rickman writes down-to-earth songs, and he and his group made regular appearances on Nashville WSMV-TV's popular "Ralph Emery Show" over an 11-year run. Rickman resides in Tullahoma.

Table donations at the April meeting netted \$125 and were given to the Blue Monarch organization. The table donations for the May meet-



AEDC Woman's Club (AEDCWC) present scholarships to students at the April 7 meeting. Pictured left to right is scholarship chairperson Suzette McCrorey, Tullahoma High School student recipients Macy Marin and Victoria Byrom, Huntland High School recipient Walker Stephens, Franklin County High School student recipient Catherine Clark, Coffee County Central High School student recipients Abbi Roberts and Aubrey Southerland, and AEDCWC Honorary President Theresa Toth. (Photo provided)

ing will be given to The Literacy Council of Coffee County.

The meeting is open to the public and provides the opportunity to meet the AEDCWC members

and to become a member. You don't need to have military connections or be involved with Arnold Air Force Base to become a member. For more membership infor-

mation call 455-3569.

The social hour of the meeting starts at 9:30 a.m. with the business meeting and program beginning at 10 a.m.

Reservations and can-

cellations for the meeting must be made no later than noon, April 28. You may make reservations or cancellations by calling 393-2552 or 931-636-4152.

*Disclaimer: This is a private organization which is not part of the Department of Defense or any of its components and has no governmental status.*

## Challenge coins: A tradition of excellence

By Airman 1st Class  
Deana Heitzman  
31st Fighter Wing Public  
Affairs

**AVIANO AIR BASE, Italy (AFNS)** - Throughout the time we spend in the military, we collect many things. Whether they are mementos, awards or habits, such

items are kept to remember those special moments we never wish to forget. Challenge coins are an example of these memories, as they are a form of recognition of the hard work and excellence an individual has displayed.

From coins presented

by the president, a chief master sergeant or a first sergeant, their value is determined by each individual, but the true history of the challenge coin dates back to World War I, when an American pilot was shot down and captured in Germany.

While escaping from

the grasp of the Germans, the pilot made his way to France, where they believed he was a spy and sentenced him to be executed. To prove his identity and save his life, he revealed a bronze medallion with his flying squadron's emblem, confirming that he was an American pilot. The French spared his life and celebrated by giving him a bottle of wine instead.

After this incident, it became a tradition that all members of the squadron carried their medallion, sparking challenge coins to become a trademark for military tradition and pride.

One of the more sought-after coins for Air Force enlisted is the Airman's coin. After the long weeks of basic military

training, the Airman's coin ceremony officially marks the transition from a "trainee" to an Airman.

"When I received my first coins for graduating both basic training and financial services apprentice school, it meant I was a part of something," said Lt. Col. Michelle Libbey, the 31st Comptroller Squadron commander.

"Receiving a coin is a sense of pride and a form of identification," said Libbey, who enlisted in 1996 and later commissioned in 2001.

While most service members proudly display their coins for others to see, some seek to always carry their most important coin in their pocket in the event of a "coin check."

"Although coins have become less popular from when I joined the military, I still carry a coin in my pocket when I go to official functions," Libbey said. "Because if you do not have one, and someone else performs a coin check, you are responsible for buying everyone a round of refreshing beverages and that can get expensive."

The tradition of coin checking also began in Germany after World War I. American personnel who were stationed in Germany adopted the local ritual of "Pfenning" checks.

A Pfenning was the lowest denomination of German currency. If a service member did not have a Pfenning, they would have to buy the next round of drinks. This ritual carried over and became part of the challenge coin tradition.

Though the legacy of coin checking typically stayed within the enlisted ranks, Libbey explained how officers have their own traditions with challenge coins.

Known as a "first salute" coin or a "silver dollar" salute, a coin was presented to the first enlisted member who saluted the newly-commissioned officer. The 19th century phrase that encompassed this action was, "You have to buy your first salute and then earn every salute thereafter, through your performance and by gaining respect of your subordinates." This is to honor the enlisted personnel who help officers achieve their commission status.

"When I became a commander, creating a coin was one of the first things I wanted to do," Libbey said. "You want to have something that signifies excellence and to recognize the Airmen who are bringing more than average to the mission."

# First Ever DoD-Procured SpaceX Launch Vehicle Successfully Puts NOAA Mission on Sun Trajectory

**LOS ANGELES AIR FORCE BASE, Calif.** – A Falcon 9 rocket carrying the Deep Space Climate Observatory (DSCOVR) spacecraft roared into orbit from Cape Canaveral AFS, Feb. 11. This was a joint mission between NASA, NOAA and the U.S. Air Force, and marks the first deep space mission for Falcon 9. The vehicle successfully delivered the DSCOVR payload to its targeted orbit and the satellite will spend more than 100 days traveling to its

position at the Sun-Earth L1 Lagrange point. There it will perform a space weather warning mission for NOAA and an Earth science mission for NASA.

The Air Force Space and Missile Systems Center procured the rocket and executed the launch under the Orbital/Suborbital Program-3 (OSP-3) contract. This was the first Falcon 9 mission acquired by the Department of Defense and provides valuable experience for potential future launches of

national security payloads by SpaceX, as will the 2016 Falcon Heavy also procured under the OSP-3 contract.

“On-ramping a new launch vehicle provider is a major accomplishment and will help drive competition in the launch market, with the goal of driving down access-to-space costs for the U.S. government,” said Lt. Gen. Sam Greaves, SMC commander.

Although not an EELV certification mission, through multiple re-

views, the SMC Falcon 9 / DSCOVR team worked with SpaceX to meet mission assurance and Air Force Space Command flight worthiness standards for this mission. The SMC team coordinated the efforts of SpaceX, NASA, NOAA, and Air Force 45th Space Wing to ensure all parties met requirements from contract award through launch vehicle build, shipment to the launch site, launch site preparations and launch execution.



A Falcon 9 rocket carrying NASA's Deep Space Climate Observatory – known as the DSCOVR mission – launches from Launch Complex 40 at Cape Canaveral Air Force Station, Feb. 11. (Photo/SpaceX)

**MY STRENGTH IS FOR DEFENDING**  
**AEDC Victim Advocates Hotline:**  
**(931) 581-7494**  
 Preventing Sexual Assault is part of our duty

Visit: [MyDuty.mil](http://MyDuty.mil)

**U.S. AIR FORCE** **READINESS = RESPECT**

## The UPS & DOWNS of electronics

It takes **7 gallons** of water to produce a **printed book**, but a **digital publication** only uses **2 cups**.

More than **140 million** mobile phones wind up in landfills every year or **4 phones every second**. E-waste makes up **2%** of America's trash in landfills, but represents **70%** of overall toxic waste.

**Is your relationship toxic?**  
 Possible side effects of e-waste include:

- mental disability
- sinus perforations
- nose bleeds
- thyroid damage
- cancer
- asthma
- kidney & liver damage

Information courtesy of sustainablog.org

# 'Snapshots' of AEDC history

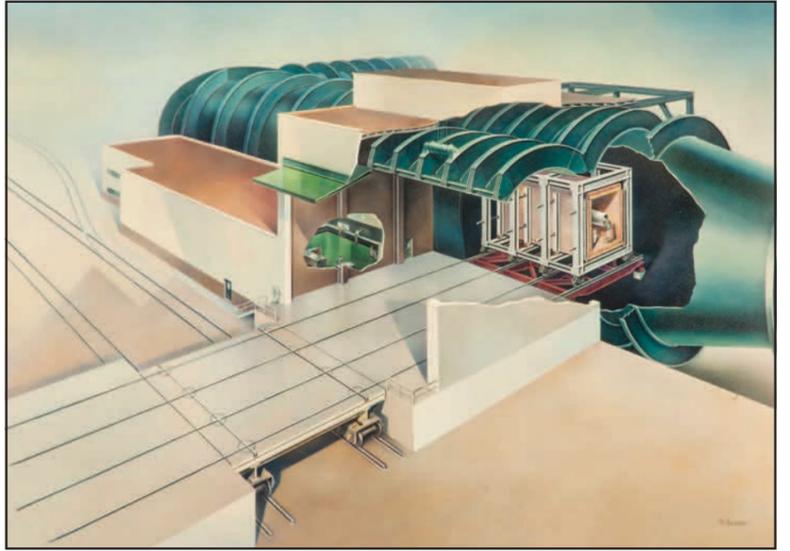
These select prints depict photographs and drawings on display in the Administration and Engineering building hallway as part of a history display coordinated by the AEDC Historian Chris Rumley.



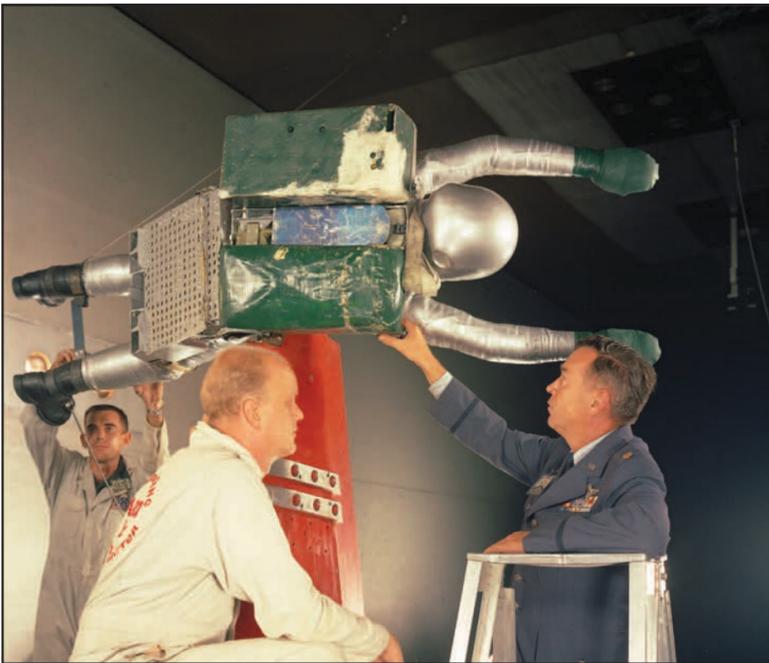
A workman stands on the scavenging duct in the supersonic circuit of the Propulsion Wind Tunnel Facility. (1960 AEDC file photo)



A scale model of Atlas base was used in early tests in AEDC's wind tunnels to study base recirculation at simulated altitudes. (AEDC file photo)



Propulsion Wind Tunnel Facility 16-foot transonic tunnel (AEDC file)

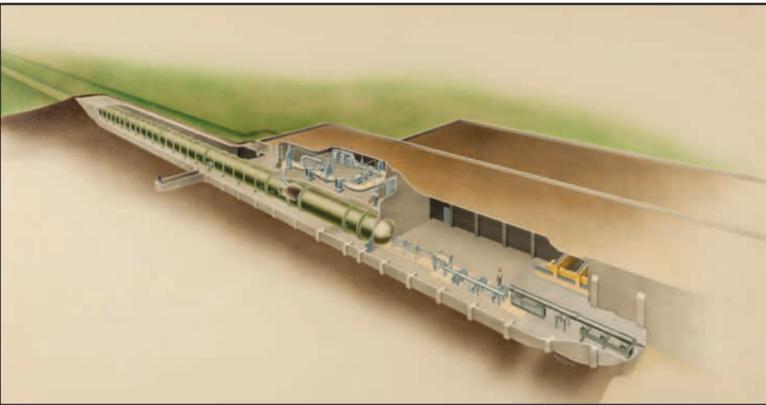


AEDC engineers look over the Gemini Ballute (parachute and survival packs) undergoing testing in the Propulsion Wind Tunnel Facility 16-foot supersonic wind tunnel. (1963 AEDC photo)

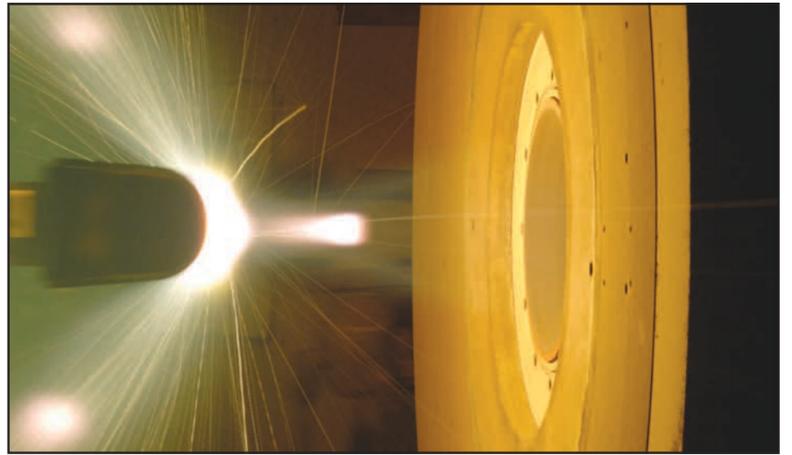


A scale model of the Boeing 747 derivative undergoes aerodynamic testing in the Propulsion Wind Tunnel Facility 16-foot transonic wind tunnel. (1996 AEDC photo)

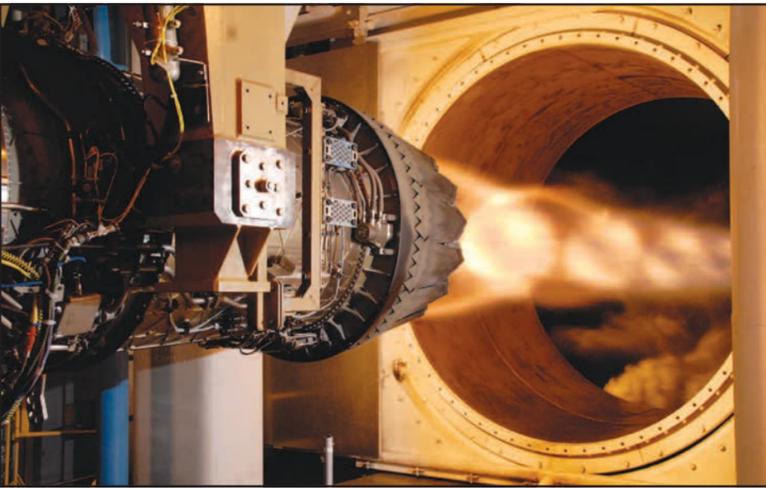
# 'Snapshots' of AEDC history



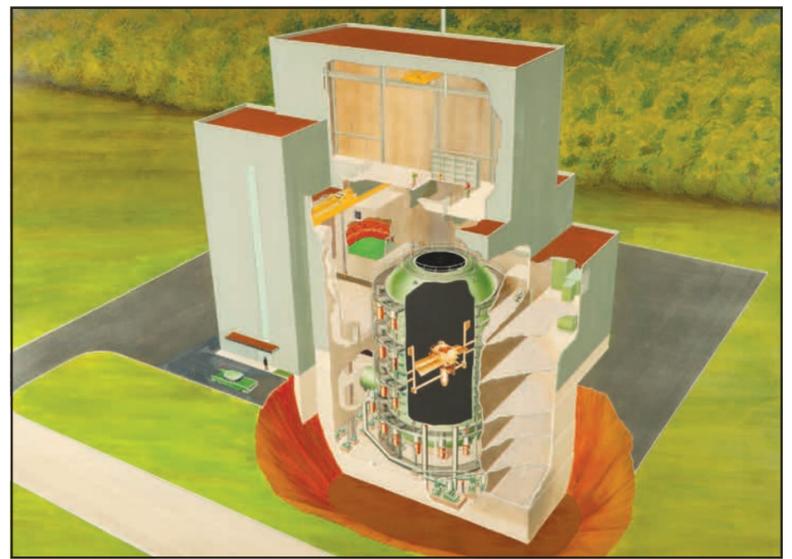
AEDC large scale impact facility, G-Range (AEDC file)



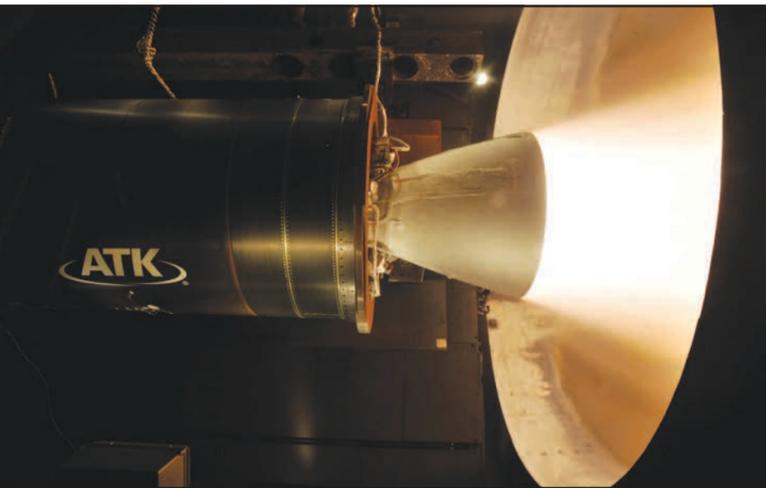
A carbon-carbon leading edges under material test in the Complex Arc Heater facility H-2. (2007 AEDC photo)



A Pratt & Whitney F135 engine for the Conventional Take-Off and Landing version of the F-35 Lightning II Joint Strike Fighter undergoes proof testing and augmenter characterization work in the AEDC Sea Level 3 test cell. (Photo by Rick Goodfriend)



Mark I Space Chamber (AEDC file)



An Alliant Techsystems, Inc. (ATK) CASTOR 30XL developmental rocket motor test conducted in the AEDC J-6 Large Rocket Motor Testing Facility. (Photo by Rick Goodfriend)



Twilight photograph of the AEDC Sea Level test cells. (Photo by Rick Goodfriend)



ALC – Arnold Lakeside Center, 454-3350  
 Café – Café 100, A&E, 454-5885  
 ODR – Outdoor Recreation, 454-6084  
 RRRP – Recycling, 454-6068  
 Marketing/Sponsorship – 454-3128  
 Barber Shop – 454-6987

GC – Arnold Golf Course, 454-GOLF  
 MG – Mulligan's Grill, GC, 454-FOOD  
 FC – Fitness Center, 454-6440  
 WI – Wingo Inn, lodging, 454-3051  
 Resource Management – 454-7425  
 Admin – 454-7779

May 2015

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<p><b>100 Mile Elite</b></p> <p>Arnold Golf Course 100 Mile Elite Challenge continues through Oct 16 \$5                      Walk 100 miles while playing, receive logo shirt                      2 Grand Prize V1 Sport Speed Cart Drawings                      100 miles = 55 nine-hole rounds</p>	<p><b>4</b> GC: Match Play Championship begins \$25 +cart/green fees                      Weekly matches based on brackets                      Max 32 players                      Sign up by May 2</p>		<p>ALC Dining Room Thu 5-8pm                      Fri 5-9pm                      Sat 5-9pm</p>		<p><b>1</b> ALC: First Friday Jam 6pm                      Member Scholarship Program entries due myairforcelife.com</p>	<p><b>2</b> GC: Commander's Season Opener 8am \$30                      includes lunch &amp; boxed gift green fee &amp; cart extra                      18 hole                      4 person scramble                      Sign up by Apr 30</p>
<p><b>3</b></p>				<p><b>7</b> Movie: The Hundred Foot Journey</p>	<p><b>8</b> ALC: Jewelry Fair in Café 100 8am-2pm</p>	<p><b>9</b></p>
<p><b>10</b> ALC: Mother's Day Brunch 11am-2pm \$12 mbr \$13 non Age 3-12 \$6.50 RSVP by May 5                      includes scrambled eggs, bacon, sausage, French toast, fried chicken, green beans, mashed potatoes, gravy, rolls, cake</p>			<p><b>13</b> ALC: Lunch at the Lake Spring Fling BBQ Buffet 11am-1pm \$7 mbr \$8 non                      FC/ODR: Health &amp; Wellness Expo 11am-1pm Win Prizes! Free Lunch!!</p>	<p><b>14</b> Movie: Into The Woods</p>	<p><b>15</b> ODR: Zip-lining Sign up deadline See May 30 for details</p>	<p><b>16</b> ODR: Stand Up Paddleboard Class 10am-noon \$10 age 13+ Sign up by May 9</p>
		<p><b>19</b> ODR Summer Hours 8am-6pm EVERY DAY! Come see us</p>	<p><b>20</b></p>	<p><b>21</b> ALC: Brushes &amp; Bottles \$25 GLC 6pm Sign up by May 18                      Movie: Viewer's Choice</p>	<p><b>22</b> ALC: Cook Your Own Steak 5-9pm \$5 mbr \$11 non Kids' Hamburger Steak option \$3/\$7 RSVP by May 12</p>	<p><b>23</b> GC: Triple Play 8am \$36 includes lunch, cart/green fee extra 2 person team 27 holes: scramble, alt shot, best ball Sign up by May 21</p>
	<p><b>25</b> Cafe 100: Closed</p>			<p><b>28</b> Movie: Viewer's Choice</p>	<p><b>29</b> ALC: Last Friday Trivia 6:30pm</p>	<p><b>30</b> ODR: Zip-lining Trip 8am-4pm age 12+ \$60 bring lunch Sign up by May 16</p>
	<p><b>31</b></p>					

