



HIGH MACH

Serving the World's Premier Flight Simulation Test Center



Vol. 58, No. 1

Arnold AFB, Tenn.

January 7, 2011

AEDC workers part of NASA group award

By Philip Lorenz III
Aerospace Testing Alliance

An AEDC team comprised of engineers, instrument technicians, outside machinists, test program planners and administrative professionals were among a larger group recently recognized with a NASA Group Achievement Award.

The team from AEDC participated on an Alternative Aviation Fuel Experiment (AAFEX) conducted at the Dryden Aircraft Operations Facility in Palmdale, Calif., in early 2009. Others contributing to the AAFEX project included NASA Langley and Glenn Research Centers, Air Force Research Lab at Wright-Patterson AFB, Aerodyne Research Inc., Carnegie-Mellon, EPA, Harvard, Missouri University of Science and Technology, Montana State University, University of California, San Diego, and United Technologies Research Center. The NASA Fundamental Aeronautics Subsonics Fixed Wing Research Project funded the AAFEX activity.

"The AAFEX experiment was very successful in enhancing our knowledge of the effects of alternative fuels on emissions from aircraft engines," said Dan Bulzan, NASA's Fundamental Aeronautics Subsonics Fixed Wing Project associate principle investigator. "This is the project that supports the alternative fuels research that we are currently doing. Two fuels,

produced using the Fischer-Tropsch process, were used in the testing along with a standard JP-8. Emissions were sampled directly behind the engines as well as at several locations downstream.

"The AEDC team was responsible for setting up and operating the sampling system and probes and also taking smoke number measurements. The testing could not have been performed without the work of the AEDC people."

The collective team of AAFEX investigators used a NASA DC-8, which has CFM-56 turbofan engines, as the test platform for the experiment.

According to Dr. Robert Howard, AEDC's lead investigator on the experiment, the aircraft was parked during AAFEX in an open-air run-up facility and complete sets of gas and particle emission measurements were made as a function of engine thrust. The primary purpose of the testing was to help evaluate the emissions for their environmental impact both at airports and beyond. The data is also being used to evaluate engine performance and further characterize the chemical composition of the emissions.

Dr. Howard coordinated the exhaust sampling system design, layout, installation, operation and needs of the several investigators from multiple agencies and companies participating in the test program. He said being recognized with



On Dec. 13 Dr. Ralph Jones, branch manager of ATA's Technology Analysis Branch (not pictured) presented the following AEDC employees with a NASA Group Achievement Award (from left); back row, Gary Storey, Larry Stanford and Terry Hand; middle row, Becky Combs, Katie Stephens, Bob Boswell and Danny Catalano; and front row, Roy Carroll, Brad Besheres, Jennifer Harvey, Dr. Robert Howard, Brad Winkleman and Steven Lepley. (Photo by Rick Goodfriend)

the NASA group award was a humbling experience and emphasized that "this was truly a team effort in every way."

"Capt. Charles McNeil, who was our Air Force project manager at the time, was instrumental in overseeing the effort," he

said. "Katie Stephens was the engineer who helped to coordinate our crew's activities, data acquisition and data processing."

See NASA, page 4

AEDC's Best looks back on a rewarding career

By Philip Lorenz III
Aerospace Testing Alliance

Tom Best, AEDC's director of engineering and technical management directorate, said he is ready to go from a hypersonic to a subsonic pace of life as he retires from a career spanning 38 busy years.

His career has included testing of the space shuttle to recruiting the next generation of scientists and engineers to representing AEDC at the Pentagon as a staff specialist in the office of the deputy director for Defense Research and Engineering within the Office of the Secretary of Defense.

Reflecting on who influenced his decision to go into engineering, the Fort Gaines, Ga., native said, "In high school, what convinced me that I wanted to follow a technical career were my math teacher and my science teacher, the one who taught physics. Ms. Edna Gay was the math teacher - she really taught me to love math."

"Mr. Covington was our science teacher who really taught me to love science. And of course, this was in the mid-1960s, so the space race was hot and heavy."



In 1977, Tom Best, an engineer for AEDC's support contractor, ARO, Inc., contributed to a Solid Rocket Booster Separation Test for the Space Shuttle in VKF Tunnel A using the facility's Captive Trajectory System mechanism. Best, pictured at left in a photo taken in November, is retiring after 38 years at AEDC. (File photos)

Best, influenced partly by his father who had attended classes at Auburn University and the proximity of the school to their home, decided the home of the Tigers

was the place to pursue undergraduate and graduate degrees in aerospace engineering.

See BEST, page 4

Final TACS systems checked for VKF tunnels

By Philip Lorenz III
Aerospace Testing Alliance

A test team at AEDC recently concluded a successful operational checkout of the new Test Article Control System (TACS) at the von Kármán Gas Dynamics Facility's Tunnel B.

According to Simon Choi, AEDC's project manager for the effort, the objective of this test project was to validate the facility modifications for the VKF Tunnel B TACS while the tunnel was operating at maximum pressure and temperature levels.

Brandon Allen, an ATA test systems engineer and the manager of VKF Tunnel B, said the timing for this upgrade project enabled the team to accomplish two goals.

"With the down time for the Tunnel B TACS (upgrade) being scheduled, we saw a good opportunity for us to be able to take our system and rebuild it because the mechanical inject mechanism will not be in use while the control system is being upgraded," he said. "So it was a very

See TACS, page 3

New loading dock improves safety, convenience

By Shawn Jacobs
Aerospace Testing Alliance

The new loading dock recently completed at AEDC's Warehouse 1 means unloading trucks will no longer have to block lanes of Hap Arnold Drive.

That should be welcome news to many employees, who have long complained of traffic congestion during shift changes and who use Gate 2 to enter and exit the base. The improvement should also bring greater safety and efficiency to operations at the warehouse.

"It's been an issue for about the last five years or probably more than that," Mike Ramsey, logistics branch manager for ATAsaid. "The length of the trailers, especially with the extended cabs on the trucks have gotten to the point where, when they're pulling in perpendicular to

the dock to unload, that they're covering part of the lane or all of the lane and blocking traffic - so that it's become a safety hazard. Of course, this goes back to the years when trucking was deregulated and the trailers started getting longer, and they're now over 50 feet."

Ramsey said trailers used to be 40 to 45 feet long. In addition, cabs, many with sleepers in them, have increased in length, adding to the safety hazard.

He said various measures have been tried or considered over the years to correct the problem.

"We've tried putting out cones, which put the person who was placing the cones out in the road at risk because they're constantly out in the road and sometimes they were blocked by the cab of a truck

See DOCK, page 4



Workers prepare to unload a truck Jan. 4 at the new island loading dock at AEDC's Warehouse 1. The new dock allows two trucks to unload parallel to the warehouse so they no longer block Hap Arnold Drive. (Photo by Rick Goodfriend)

In This Issue....

Junior officers travel to Ohio ...
Page 3

Sky calling for AEDC employee ...
Page 7

A look back at the year 2010 ...
Pages 9-10



HIGH MACH

Arnold Engineering Development Center
An Air Force Materiel Command Test Center

Col. Michael Panarisi
Commander

Jason Austin
Director,
Public Affairs



Dr. David Elrod
General Manager,
Aerospace Testing Alliance

High Mach Staff:
Kathy Gattis, ATA Public Affairs Manager & Executive Editor
Patrick Ary, Editor
Information International Associates, Inc., Production

High Mach is published by *The Tullahoma News*, a private firm in no way connected with the U.S. Air Force, Arnold Engineering Development Center (AEDC) or Aerospace Testing Alliance (ATA), under exclusive written contract with ATA, center support contractor, at Air Force Materiel Command's AEDC, Arnold AFB, Tenn., 37389.

Everything advertised in this publication will be made available for purchase, use or patronage without regard to race, color, religion, sex, national origin, age, marital status, physical handicap, political affiliation or any other non-merit factor of the purchaser, user or patron.

The *High Mach* office is located at 100 Kindel Drive, Suite B212, Arnold AFB, Tenn. 37389-2212. Editorial content is edited and prepared by AEDC support contractor ATA. Deadline for copy is Wednesday at close of business the week before publication.

This commercial enterprise newspaper is an allowable ATA contractor publication for personnel at AEDC.

The content of *High Mach* does not necessarily reflect the views of the Air Force, AEDC or ATA. The appearance of advertising in this publication does not constitute endorsement by the Department of Defense, the Department of the Air Force, AEDC, ATA or *The Tullahoma News* of the products or services advertised.

For advertising information, call (931) 455-4545.

For general information about *High Mach*, call (931) 454-5617 or visit www.arnold.af.mil.

The center's vision: AEDC as the test center of choice, the workplace of choice for our people and a model of environmental excellence.



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



Core Values

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

A message for AEDC's 60th anniversary

By Col. Michael Panarisi
AEDC Commander

As I thought about an appropriate topic for this special "birthday edition" of *High Mach*, I was drawn to a sign I have in my home. The message fits today's events perfectly. A new year, a fresh crop of New Year's resolutions (some already broken!) and the cold, harsh reality that I'm one step closer to the "half-century" mark. Today, the immortal words of President Abraham Lincoln remind me of my goal for 2011.

It's not the years in your life that count, it's the life in your years.

I can't think of a better theme for 2011.

In many ways, 2011 looks to be a bit of a repeat

of 2010. The economy is showing faint signs of a rebound, the housing market seems to have recovered from freefall and the stock market is looking a little more stable. The labor reports are optimistic, and the tone from industry is less ominous.

But the new Congress is facing many of the same challenges we faced in 2010, with rising national debt looming large on their agenda. The impact to AEDC is still unclear, but it's unrealistic to expect that we'll see an increase in our budget, and it's unlikely we'll receive an unplanned test that would offer some cushion to our fiscal outlook.

This time last year, we put out a "call to arms"



Panarisi

asking for everyone to help us find and eliminate inefficiencies, cut waste and streamline our operations. We've implemented countless initiatives since that time and despite a significant budget reduction, we were able to keep the impact to a minimum.

But as we continue facing "lean times" our work along these lines is far from

over. So what does that have to do with Lincoln's words? Lincoln's words remind us we have to make every day count, both in our jobs and in our lives "off base." The new year offers us new opportunities to recharge our efforts on both fronts. It might sound odd, but the idea that "you get out what you put in" applies both at home and at work.

I find work a ton more rewarding if I'm accomplishing something, and most of the time, I can accomplish more if I just focus on the task at hand. And the more I get done, the better my chances are of having the flexibility to get home and focus on "mom and the kids." Lincoln tells us to avoid just getting by,

and I don't think he meant to limit that advice to recreation.

Life will always be a balancing act, and my hope for everyone at AEDC is that the new year will bring a renewed sense of balance, accomplishment and most of all, achievement. I think that's where New Year's resolutions really come from ... our innate need to accomplish something, a goal that we set for ourselves.

So here's one: "I want to do more in 2011 than I have ever done!"

Setting our sights that high can make a big difference in our lives, and might even put a smile on the former president's face, not to mention everyone around us. Happy New Year!

Times have changed, and so have deployments

By Chief Master Sgt. James Fulton
375th Security Forces Squadron

SCOTT AIR FORCE BASE, Ill. (AFNS) -- Way back in the day Air Force physical fitness meant being able to cross the finish line at the end of a 1.5-mile run, lighting a cigarette and trying not to have a heart attack before your next test the following year. Of course, our global mission was a lot different.

We were still basking in the glow of the Cold War victory, and we only had to maintain what the generation before us had set out to do and accomplished. It was so easy; all we had to do was kick back, flip on the computer monitor and watch for something to happen. A deployment would last for 90 days at best and by the time you

remembered why you had joined the Air Force in the first place it was time to come home again. The times have really changed.

We are now the innovators of world peace. In every corner of the globe there is a Soldier, Sailor, Marine or an Airman defending someone who cannot defend themselves and for no less than 180 days at a time. Our families used to cringe at the slightest mention of a deployment, now we affectionately refer to them as rotations, meaning "it is my turn." How do we do what we do over and over again? How do we survive the ugliness of war, the separation from our families and the misery of solitude?

One way we accomplish our mission is based on our personal ability to control the things we can and adapt to the things we cannot. It is human nature to seek normalcy in every aspect of our lives. It gives us a sense of calm and feeling of control.

When we pack our bags to deploy, we try to limit ourselves to the essentials, but always seem to have room for something special; things like a picture drawn by a child, a photo of coworkers, or maybe a gift from mom. One item we always need to bring with us is the physical and mental health developed by having a strong personal fitness program.

Physical training is not just about passing a test once or twice a year; it is about adapting to the Air

Force way of life. When we go down range to accomplish the mission we need to have the physical endurance to sustain long hours under harsh conditions.

Additionally, we need to be able to release the tension that mounts from those harsh conditions; the fear and anger, and as terrible as it can be, sometimes even the loss. Being able to maintain your personal fitness program by going for a run, or working out in the

gym provides that mental release, while at the same time giving us that sought after sense of calm and feeling of control.

While deployed, we cannot control our location, but we can control what we do while we are there. By having a good personal fitness program you're more ready to deploy. While deployed, it will help you maintain a physical and mental toughness to see you through until you return home.

The Year of the Community College is here

By Gen. Donald Hoffman
Commander, Air Force Materiel Command

On January 1, 2011, AFMC began our "Year of the Community College of the Air Force" (YoCCAF) campaign.

John Buchan, a 20th century writer and politician, once said, "The task of leadership is not to put greatness into people, but to elicit it, for the greatness is there already." Therefore, I challenge each of you reap the benefits of formal education during the New Year.

AFMC's YoCCAF will emphasize the need for enlisted Airmen to earn college degrees, specifically a CCAF degree. Currently, 24 percent of AFMC's enlisted Airmen have earned degrees through CCAF, and our goal is to increase this by 10 percent in 2011.

With 67 degrees in five general areas, CCAF provides career-specific education for enhanced performance as technicians and noncommissioned officers.

YoCCAF will employ a direct approach-individual bases will designate mentors to contact Airmen face-to-face to share the importance of education in their own lives and the benefits to the entire Air Force. Although YoCCAF will target E-4 to E-7, I encourage all Airmen to seek additional education regardless of rank.

Formal education after high school is a path to promotion and personal development for enlisted Airmen, and a commodity highly valued in all Air Force members. Even the wisest mind has something more to learn.

CMSAF Roy said, "Airmen are to be trained, educated, and have the experience (depth) to carry out the mission." Our Air Force is confronted with great challenges and considerable fiscal constraints, but the solutions are right here.

They are in the new recruits, in the Airmen we supervise, and inside each one of us. Through continuing education we can unlock ideas to create efficiencies, conserve valuable resources and inspire innovation.

Whether for promotion, qualification for a special duty, or personal improvement, I encourage all AFMC Airmen to make time for education in the New Year. Add educational goals to your list of New Year resolutions for 2011 and keep learning – the future of the Air Force depends on it!

Since You Asked...
Who (living or dead) would you most like to spend the day with? What would you talk about?



Derek Willis

"I would like to spend the day with my grandpa, who has been deceased since I was a child. I would just talk about our family and life in general, just the two of us as we did many years ago."



Joe Migliaccio

"I would like to talk with my grandfather who died about the time I was born. He immigrated from Italy to the U.S. about 1910. Why did he come to America, and how did he wind up in Memphis?"



Artie Smith

"I would like to spend the day with my dad. I would like to tell him what a great influence he has made on my life and to thank him for everything he has taught me. I owe a lot to him."



Robin Roberson

"My great-grandfather, Marion Townsell. What was it like back in the roaring '20s in Chicago? Did you really know Al Capone? What happened to 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, you cannot smoke 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. In case of inclement or cold weather, employees are encouraged to use their personal vehicles if a sheltered designated smoking area is not available nearby. 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 AEDC web portal at [https://lpapro.arnold.af.mil/PORTALimages/Smoking area map. pdf](https://lpapro.arnold.af.mil/PORTALimages/Smoking%20area%20map.pdf). 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.

Regarding use of smokeless tobacco, 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. Smokeless is strictly prohibited in conference room meetings and other areas, e.g. PMEL, where Air Force regulations specifically prohibit.

- Supervisors at every level will ensure this policy is followed. Disciplinary action is appropriate for repeated violations.
- Updates to this policy will be made in the future to further align with Air Force guidelines.
- This letter supersedes previous letter dated 28 October 2006, subject as above.

AEDC junior officers observe flight line operations firsthand

By Philip Lorenz III
Aerospace Testing Alliance

Recently, 1st Lt. Jason Lackey and 2nd Lt. Drew Miller, junior Air Force officers who are test project managers with AEDC's Turbine Engine Ground Test Complex (TSTB), took full advantage of a unique opportunity.

Lt. Col. Brent Peavy, the TSTB commander at AEDC, had suggested that they accompany John Kelly, a senior project manager, who drills with the Air National Guard's 180th Fighter Wing, to see how the user operates and maintains what is literally being tested at Arnold.

Lieutenant Lackey, who was raised in a military family, said he found the chance to see aircraft operations first-hand to be irresistible.

"After being offered the opportunity to attend a drill weekend, I immediately said 'Yes,'" the Valdosta State University graduate said. "I [had] always thought when I got into the military I'd be working on and around jets – so, getting to actually go and see that was awesome."

Lieutenant Miller also found the trip to Ohio beneficial.

"I had an idea of what maintenance guys did, but just to be there and follow them around and be involved was pretty neat," Lieutenant Miller said. "I got to follow a crew chief for [an aircraft maintenance] turn around the plane and see what he saw – he explained everything as we went through it – it was a really good experience."

Kelly, who is a senior master sergeant

and a maintenance crew chief with the 180th Fighter Wing, said the opportunity to show his colleagues the "operational side" of the Air Force was invaluable.

"In November they came up to Toledo, Ohio, and spent the weekend with me and other members of my unit and got [as close as they could to a] hands-on experience on the F-16 [Fighting Falcon] with the F100-PW-229 engine," Kelly said.

The two junior officers observed the unit's maintainers disassemble an engine in the unit's shop, watched as an engine fan was replaced and witnessed the mechanics remove a low pressure turbine from another engine.

"They also got the opportunity to tour our alert facility and see flight line opera-

tions first-hand, including recovering jets from a flight," Kelly explained. "The crew chief goes from nose to tail, through the whole aircraft looking [at] everything that he can, [like he is] literally kicking the tires and making sure everything is ready to go. Then the pilot comes out for the next go and the launch procedure takes about 20 minutes [while] the pilot and the crew chief are talking again on the headset, going through flight control and engine checks – the crew chief is kind of the pilot's eyes on the ground."

Kelly said the experience was special for another reason.

"We just [recently] finished the 6,000

See OHIO, page 5

Loan to showcase aviation heritage



AEDC Commander, Col. Michael Panarisi, describes the A-7 Corsair II aircraft test model to the Tullahoma Board of Mayor and Aldermen and local citizens Dec. 21 during a board meeting. The model, which is owned by the Air Force's Seek Eagle program, is being loaned to Tullahoma to help the city highlight its rich aviation heritage. (Photo by Jason Austin)

Ready to Relay again



Dee Wolfe's AEDC team "Chair Force" at last year's Relay for Life on April 23, 2010. First row: Lt. Jack Ambridge, Donna Paredes, Amber Wolfe. Second row: Dee Wolfe, Jimmy Malone, Lt. Drew Miller, Tech Sgt. Naomi Bullock, Shawn Wolfe. AEDC fielded three teams last year.

AEDC to participate in Relay for Life once again

By Shawn Jacobs
ATA Public Affairs

This year's Relay for Life will be held April 29-30 at the Coffee County Fairgrounds, and AEDC employees will again participate in the fundraiser for the American Cancer Society.

At the relay, teams of people camp out and take turns walking or running around a track. Each team is asked to have a representative on the track at all times during the event.

Dee Wolfe, education and training specialist at AEDC, coordinates the base's involvement in the event.

"When I arrived in October 2008, AEDC as a whole didn't know what Relay for Life was all about," Wolfe said. "I told my story of my battle with thyroid cancer and asked AEDC to come out and support me and the American Cancer Society by joining a team at Relay for Life. In 2009, two AEDC teams showed their support and raised more than \$6,000. Last year, three AEDC teams raised more than \$10,000 for cancer research."

Wolfe said her life has been touched by cancer since she first told her story at AEDC.

"My dad found out he had prostate cancer and went through treatment in 2009," she said. "Then in September 2010, I was once again told I had cancer and had surgery to remove it in October. Relay has meant a lot to me and my family since we first got involved in 2007, but each year it comes to mean more as cancer affects my family and me."

Relay starts at 6 p.m. Friday and ends at 6 a.m. Saturday. All team members do not have to be at the fairgrounds the entire night. Wolfe said, rather than having several teams this year, she and the previous team captains have discussed having just one big team.

If anyone needs more information about Relay or is interested in joining the team, contact Dee Wolfe at dee.wolfe@arnold.af.mil or (931) 454-4313 or Shawn Wolfe at shawn.wolfe@arnold.af.mil or (931) 454-7732 by the end of January.

TACS from page 1

opportune time for us to kill two birds with one stone."

Choi said the new system "gives a tester better handling of testing and allows improved efficiency in doing aerodynamic and hypersonic testing, especially Mach 6 and 8."

Doug Hamilton, ATA investment manager on the project, said, "There were a number of individual control systems that were combined – the advantage being that an operator in one [facility] can see familiar screens and if you can operate one, you have a much higher ability to step in and operate another tunnel."

Paul Jalbert, an ATA test project engineer who has been assisting with the project provided some background information on the checkout work.

"We've been doing offline checks for several months now, after the TACS system was installed," Jalbert said. "There's been a series of three or four different checkout plans that have been conducted to make sure that the TACS functions as it was designed."

Jalbert said the recently completed system checkout was the culmination of a considerable upgrade project that included earlier checkouts of the TACS in VKF Tunnels A and C.

"TACS is the software that controls the facility operations and the attitude of the model and does health monitoring of various systems and tells us when things get out of specifications," he said, adding that another objective was met as well. "When they improved the TACS, they [also] took the opportunity to change out an encoder that measures the pitch attitude of the model in the tunnel to something that's more modern and easier to use than the old one used to be."

"So, the cooling system that maintains that pitch encoder at a low temperature during the high temperature tunnel operation has been replaced."

Terry Rayfield and Barry McCann, ATA control systems design engineers, took the lead with a team to design the TACS for the upgrade project.

"The [VKF Tunnels] A, B and C TACS

designs were leveraged from the Propulsion Wind Tunnel (PWT) Facility TACS designs so that commonality between PWT and VKF test modeling positioning systems would be maintained," Rayfield explained. "At VKF, a TACS system resides in each one of the test units. Each system consolidated several control systems that were utilized to control the model in the test cell and other test customer parameters, such as mass flow control."

"This consolidation reduces the number of test operations personnel will be required to operate and perform maintenance on the test unit. The greatest enhancement for VKF is the ability to operate the system from each respective tank area, which was not possible with any of the existing control systems. This feature alone has improved efficiency in test buildup and maintenance activities immensely."

Rayfield went on to explain how and what the system upgrade can accomplish.

"Each TACS is a multi-processor control system that provides real-time, closed-loop control for the respective test article support mechanisms associated with each test facility and test user's test peculiar control hardware," he said. "The system also provides the controls and monitoring of model support systems associated with each test unit."

"The system provides the means to safely operate these mechanical model positioning and model support systems and provides system diagnostics that allow the operators and system engineers to interrogate these systems and the associated system hardware to determine system problems; thus, greatly minimizing lost test time. The TACS are a highly versatile control system that allows great flexibility in meeting test customer requirements when they are outside the normal operating envelope of the respective test unit."

Rayfield added, "Furthermore, the TACS systems have all been designed using common system architect and system hardware, thus, simplifying the maintainability and supportability of the systems."

BEST from page 1

It was a decision he never regretted.

Shortly after joining AEDC's work force in 1972, Best was working long hours as a test engineer in Arnold's von Kármán Gas Dynamics Facility's three wind tunnels.

"I got to work on some national-level programs that were important for our nation," he recalled. "The one that I'm most proud of occurred in the '70s and '80s of my career – [it] was all the work I did in support of the space shuttle development.

"And it wasn't all me; it was me and the team of folks I was working with. We made some very significant contributions to that program. It would not have been as successful as it is without AEDC's help and I was part of the team that did it."

Best has worn many hats during his most current job at AEDC.

Shortly after former AEDC Commander Col. Art Huber kicked off the Technical Excellence Initiative (TEI) in 2007, he named Best to head up that effort.

"In the pursuit of our

Technical Excellence Initiative, I was mindful of the lessons I had learned on previous efforts and from the business literature on what it takes to make change efforts succeed," recalled Colonel Huber, who is currently the vice commander of the Aeronautical Systems Center at Wright-Patterson AFB, Ohio. "One of these lessons learned was the importance of senior leadership involvement and the need for someone to be put in charge of implementing the new vision. Tom Best, with his extensive management experience, technical background, and aerospace community network, seemed a logical choice to make lead for implementation of the TEI."

Chris Smith, the technical director of the Space and Missiles Ground Test Complex, who also serves on AEDC's Technical Excellence Board (TEB), with Best, agrees with Colonel Huber's view of Best and has enjoyed seeing how that effort has paid off.

"The TEB – mostly Tom – created and managed AEDC's monthly technical excellence forum where guests

from inside and outside the fence were invited to present a technical achievement that was of interest to AEDC," Smith said. "One example of this initiative was the Young Professionals' forum where a couple dozen of technical activities were selected for poster presentation locally.

"There's so much taking place at AEDC that I didn't know about, but I learned through these forums. It was also encouraging to see the next generation of AEDC engineers and scientists ready, willing and able to accept the charge and carry on in the footsteps of some truly technical giants."

AEDC Executive Director Britt Covington said he has been impressed with the work Best has accomplished.

"I believe Tom's greatest legacy at AEDC is his steadfast recruitment over the years of so many new young talented engineers through such programs as Palace Acquire and SMART (Science, Mathematics And Research for Transformation), Covington said." These future strategic leaders of AEDC are only here

because Tom Best found and recruited them. I know he will come back in a few years and see many of these same 'recruits' as the senior leaders of AEDC."

Best said recruiting the next generation of technical specialists at AEDC has been rewarding.

"I'm proud to have brought them in, proud to know them. I'm really proud to see the accomplishments that they're doing early in their career, Best said. "I think they'll be the people who will lead AEDC in the future."

Best said another enjoyable aspect of his career is the collaborative relationships he has been able to foster with his counterparts in Germany, France and the Netherlands as a result of his work with those countries' wind tunnel scientists and their ground testing facilities' leaders on modernizing their facilities under national data exchange agreements.

Dr. Georg Eitelberg, the director of the DNW, a joint German and Dutch Wind Tunnel organization headquartered in the Netherlands, met with Best and others at AEDC last month.

"We did agree to pursue technical topics of mutual interest like improving the measurement quality [on internal balances in wind tunnels and using a reference model] and improving the wind tunnels as flight simulation tools," Eitelberg said. "[However] I believe that Tom's contribution should be put into a wider context. He has, for many years, been the soul and the guarantor of our trans-Atlantic collaboration."

Best said he unofficially became the lead at AEDC for NASA collaboration for several years.

One initiative he was



Pictured with the model of the C-17 advanced transport aircraft, installed for testing in the 16-foot transonic wind tunnel at AEDC in 1983, are (from left) King Bird, Calspan general manager; Jerry Spurlin, Calspan project engineer; Tom Best, Air Force test director; Col. Philip Conran, AEDC commander; and Russ Common, C-17 test project manager for McDonnell Douglas. (File photo)

involved with led to the development of a standard wind tunnel check model for wind tunnel comparison between AEDC and NASA wind tunnel facilities.

"Tom Best has provided highly coveted guidance and assistance to NASA senior managers and program directors over the last five years in developing and executing the Aeronautics Test Program (ATP)," said Tim Marshall, deputy director of the Aeronautics Test Program, NASA Langley Research Center. "He has been a vital link between NASA and the DoD and is truly one of the best friends ATP ever had."

Best has also taken a long-standing and active role in a number of professional organizations, including local chapters of the International Test & Evaluation Association (ITEA), American Institute of Aeronautics and Astronautics (AIAA) and the Arnold Association of Professional Societies.

Best is looking forward to spending quality time with his wife Reeda and their two children, Andy and Audra. He also wants to re-engage as a volunteer with the Highland Rim Chapter of Habitat for Humanity, a chapter he helped to form in 1993.



Col. Don Peterson (left) talks with Capt. Carl Bang and Tom Best, an Air Force engineer, as the three examine a model of the Shuttle orbiter tested aerodynamically in one of Arnold Engineering Development Center's wind tunnels in March 1982. (File photo)

NASA from page 1

"Our crafts guys were also critical to the success of this experiment," he continued. "Brad Besheres, an ATA outside machinist, was responsible, along with Roy Carroll and Gary Storey, ATA instrument technicians, for installing and operating our test instrumentation, including thermocouples, pressure transducers and sample-line heating controllers. They also were essential in acquiring data during the test."

Dr. Howard said Steve Lepley, ATA outside machinist, helped with the pre-test preparations and traveled to the site late in the test to support Besheres with the final work and disassembling AEDC's equip-

ment afterwards.

"Brad Winkleman is the ATA engineer who wrote many of the data acquisition programs for AEDC instrumentation and the motorized table for traversing the probe rake system," Dr. Howard explained, "and Terry Hand is the ATA engineer who designed the tall probe-rake system referred to as the JSF (Joint Strike Fighter) rake. This probe rake system was developed for another program, but was used for engine exit-exhaust sampling for the 'right-side' engine on the AAFEX test program."

Dr. Howard said the "behind the scenes" effort that went into preparing for the test was substantial.

"ATA's Becky Combs

helped to organize the AEDC emissions trailer, equipment, supplies and shipping document for transport to NASA Dryden," he said. "Jennifer Harvey did all our purchasing after she had researched vendors and submitted procurement requests.

"She then tracked procurements during the pre-test planning and readiness process and also submitted emergency procurement orders during the test program."

Dr. Howard credited Danny Catalano, an ATA engineer's aide, with designing the NASA rake used on the aircraft's left engine.

"Danny is a valuable resource regarding the design, fabrication and op-

erational parameters of our probe-rake systems. [He also] provided support during pre-test system engineering and consultation during test operations," Dr. Howard said.

Dr. Howard cited the value of Catalano's ability to work well with AEDC's machine shop on fabricating rakes that are not cost prohibitive, function properly and are robust and survive the extreme environment of testing.

Dr. Howard also had praise for another member of their team, Russ Groff.

"He [Goff] is the ATA mechanical engineer who helped design the 'box' that was mounted within the exhaust flow-field about 30 meters downstream of the engine to house particle

measurement instrumentation," he explained. "We're seeing how the emissions change with distance – there are some [changes in] chemistry, kinetics and microphysics on particles. If you're at the absolute exit of the engine core, the exhaust is up around 800-1,100 degrees Fahrenheit. If you look at the particles at that point, they're all carbonaceous particles, what you call 'soot', little balls of carbon.

"If you go way on downstream, it [the emissions gases] cool down – the exhaust cools down and you have sulfur and nitrogen compounds and unburned hydrocarbons that will condense and form what we call volatile particles."

Also, Dr. Howard said

there were individuals at AEDC who, although they were not mentioned in the award, deserve credit for their contribution to AAFEX.

"The AEDC model shop was instrumental to the success of this effort," he said. "They fabricated both probe rake systems, the traverse stand and many of the customized sample system splitters, manifolds and etc.

"Larry Stanford, Bob Boswell and the entire model-shop crew are a valuable AEDC asset that we often take for granted."

Dr. Howard and the other members of the team have worked with NASA previously on similar testing and he said more work on AAFEX is coming in 2011.

DOCK from page 1

from oncoming traffic," Ramsey said. "We stopped that. We talked about putting some type of lights or signs up or even redoing the road and extending or widening the road in one area, but all were seen as kind of limited solutions."

Officials even considered unloading behind the warehouse, but that idea was scrapped because of safety concerns over creating congestion for Warehouse 2, where outgoing trucks are loaded. Ramsey said, due to limited space, trucks would have trouble backing into that area, creating even more of a safety risk. He said the new "island dock" was decided upon as the solution.

"It's a dock that's built off of our primary loading dock that allows the truck to pull in parallel to the existing dock on either side of that new island dock, as opposed to being perpendicular to the dock," Ramsey said. "What that means is, while trucks are unloading, there won't be any blockage in the lanes at all ... so, we can off-load two trucks at the same time ... with both of them being out of the roadway.

Ramsey said the new dock includes other safety features.

"There's an arm that's got a light on it that puts some light into the trailer while we're unloading," he said. "We put the roof on

this one, too, and we've got some guard rails around the dock as added safety measures.

"It's also got a dock arrester where when the truck backs up it will automatically lock into the bumper of that truck as a safety measure, and it's got a light that will activate that goes red when they back up and that dock arrester is activated. The truck driver can't drive away until that light is green. It's another safety measure that's built into the dock that we didn't have before."

Keith Marshall, ATA manager of storage and distribution, explained how the new dock will

make work easier and more efficient for him and his employees.

"It'll get the traffic moving down the road, which has been a major problem at AEDC for a long time," Marshall said. "We get lots of comments about holding up traffic in the morning and in the afternoon when people are coming in and leaving. It should make us ... more efficient in loading and unloading and not being in the road, not having to hurry to get the truck unloaded. [We can] be safer at the same time."

The new dock was constructed under an Air Force contract, with help from the Design and Safety offices on base.

AEDC airman to study Swahili in LEAP program

By Patrick Ary
Aerospace Testing Alliance

There's a good chance most people know how to speak a few words of a language other than their native tongue.

That other language is most likely a common one taught in high school, such as Spanish, French or German.

But Air Force 2nd Lt. Wes Meredith forgot any of the French he took in school a long time ago. His language of choice: Swahili.

Lieutenant Meredith, a project manager at AEDC, has been speaking Swahili for the last three or four years. Now, he's making sure his ability to speak the language remains sharp in a region where you'd be hard-pressed to find someone else who speaks it.

Lieutenant Meredith recently was accepted into the Language Enabled Airmen Program (LEAP), which the Air Force started earlier this year. The program is aimed at finding Airmen who speak a foreign language and ensuring they maintain their abilities through individual customized sustainment plans. Lieutenant Meredith is one of about 260 volunteers who were selected for foreign language instruction.

Through LEAP, Lieutenant Meredith will receive continuing education through his Air Force career to ensure his Swahili skills don't diminish. It's something he says will help him greatly because of where he's currently stationed.

"Honestly, who am I going to talk to in Swahili in Middle Tennessee?" Lieutenant Meredith said. "I'm going to lose it really fast. So this helps."

Lieutenant Meredith had been using Rosetta Stone software to keep his Swahili current until a couple of months ago. Now, as part of LEAP, he will attend a Language Intensive Training Event (LITE) that will last four to six weeks. The exact date will be scheduled after the first of the year. After that, he will stay up-to-date on his language skills with five hours a week of online tutoring and lessons and will attend more LITEs every year or two.

The LEAP program also will help



AEDC 2nd Lt. Wes Meredith poses in front of a cheetah with his sister, Emily, during a visit to Masai Mara park in Kenya. Lieutenant Meredith grew up in Kenya and hopes to return there someday. To help his chances of going back, he is taking Swahili courses through the Air Force LEAP program. (Photo provided)

Lieutenant Meredith develop a more formal proficiency in Swahili, since most of his knowledge of the language is conversational. He says it's not as complex as English, and he would rather be learning it than his native language.

"English would be ridiculous to learn," he said. "Swahili's pretty easy."

Lieutenant Meredith grew up in Africa but didn't start learning Swahili until he started high school. His parents are missionaries, and they moved from Atlanta to Zambia when he was three years old. They lived there until deciding to move to Kenya when he reached high school, and that's where he started learning the new language.

Lieutenant Meredith said even though

English is Kenya's national language, speaking and understanding Swahili helped him when it came to interacting with the locals there. "You get better prices on things if you have to bargain for something," he said. "Pretty much everything can be bargained for, but you get better prices if you speak Swahili, because they know you're local and they won't charge you exorbitant amounts the way they would a foreign person."

While it helped him in everyday life while he lived in Kenya, Lieutenant Meredith plans to use his knowledge of Swahili to help his future in the Air Force.

It may just be a conversation point here at AEDC, but later in his career he wants his aptitude in a foreign language

to get him back to Kenya as a regional affairs strategist. He believes knowing Swahili now will help him broaden his career faster than making a decision later and spending time learning at the Defense Language Institute.

And he has another reason for wanting to go to Africa: his family.

"My brother goes to high school over there and he graduates next July. I don't know if they'll stay or go," Lieutenant Meredith said. "I hope they stay."

The Air Force Culture and Language Center plans to select 400 volunteer officer participants each year for the LEAP program and is currently working on a similar program for enlisted members and Air Force civilian employees.

OHIO from page 3

Total Accumulated Cycles (TAC) or full life AMT [Accelerated Mission Test] on the F100-229 engine and coincidentally the very first one in the United States is at our guard unit, in use."

A TAC is a unit of measurement for major rotating engine components tracked during an engine's operational life.

Colonel Peavy explained why he encouraged the officers to make the trip to the reserve unit.

"As developers and testers I see one of our key roles as balancing the requirements of the design engineers, the maintainers and the users of the new systems that the Air Force is fielding," Colonel Peavy said. "In order to make this happen we have got to understand all three groups. One of the best ways to gain that understanding is to get involved with the work they do day-to-day."

"Maintainers are our most under represented group in the test community, so it is important for us to go look for that knowledge and perspective," he said. "The folks in the maintenance community are always enthusiastic about teaching, if you are willing to learn."

Colonel Peavy said he also wanted the officers to get a wider perspective on other organizations in the Air Force.

"The 180th [Fighter Wing] offered them the opportunity to see how an operational Air Force organization is put together and how it functions," he said. "I am extremely grateful to them [the 180th] and to John for the great career development opportunity they gave Lieutenant Lackey and Lieutenant Miller."



AEDC's 2nd Lt. Drew Miller and 1st Lt. Jason Lackey stand in front of a Block 42 F-16 Fighting Falcon with the 180th Fighter Wing of the Air National Guard at Toledo, Ohio in November. The stinger bee logo on the tail of the 180th Fighter Wing's aircraft is representative of their nickname as the "Stingers." The Block 42 F-16 is powered by the F100-PW-229, which has been tested extensively at AEDC. Coincidentally, the most recent F100-PW-229 testing was accomplished in AEDC's SL-3 test stand as part of the engine's Service Life Extension Program, extending the 229 life by almost 50 percent. The 180th Fighter Wing has the first two extended life 229s in the United States. (Photo provided)

Funeral for AEDC employee is Saturday

Brad Evanski, 45, of Manchester, died unexpectedly Jan. 2 at Harton Regional Medical Center. He was an instrument technician for ATA's Facilities Operations and Management division and was a veteran of the U.S. Navy. Visitation will be held from 5-9 p.m. Friday, Jan. 7, at Coffee County Funeral Chapel and from noon-2 p.m. Saturday, Jan. 8, at Rutledge Falls Baptist Church with funeral services to follow there at 2 p.m. Burial will be at 2:30 p.m. EST Monday, Jan. 10, in the Chattanooga National Cemetery.

Officer selection brief changing

By Daniel P. Elkins
AF Personnel Public Affairs

Washington (AFNS) – In an effort to better highlight candidates who possess the skills necessary for officer promotion in today’s expeditionary Air Force, senior Air Force officials approved changes to the officer selection brief.

The modified officer selection brief will be used beginning with boards in

June and include a more detailed professional military education section, the addition of a foreign language proficiency section and an acquisition qualifications section.

“The modifications to the officer selection brief better highlight important competencies for global Air Force operations and allow officers with these attributes to be more easily identified

by promotion boards,” said Brig. Gen. Sharon Dunbar, the force management policy director, deputy chief of staff for manpower and personnel.

The Force Management and Development Council, which makes strategic-level recommendations to the secretary of the Air Force and chief of staff of the Air Force on force management and development issues based on input from leaders across the Air Force, recommended the modifications as a means to identify Air Force officers with key skills in today’s force.

For example, the enhanced PME section reflects the Air Force’s emphasis on officer development. The section will include an at-a-glance summary of the school attended, method of completion and date of completion. Previously, the section just included the level of schooling and date of completion.

The council also found that officers who have foreign language skills and cultural experience relevant to world operations play a key role in supporting joint combatant commanders. Therefore, they recommended the addition of a foreign language section to help identify these in-demand

officers to promotion boards. This new section will capture the language, listening and reading proficiency level and a certification date.

“Officers who possess such language skills and cultural understanding underscore the service’s efforts in developing regional expertise and building partnerships across the globe,” said Mike Nolta, the deputy chief of the international Airmen division for the Secretary of the Air Force International Affairs office.

Finally, the addition of the acquisition certification section helps identify those contracting professionals who have the necessary skills and training to ensure acquisition excellence—one of the Air Force’s top priorities. The brief identifies majors who have met all acquisition corps eligibility requirements with the exception of rank as “eligible” for admission into the Air Force Acquisition Corps.

Personnel officials said identifying these Airmen also keeps the Air Force in compliance with U.S. code that ensures active-component officers selected for the acquisition corps are promoted at the rate of line officers. This code does not apply to the Reserve component.

The sky is calling for AEDC's Larry Wilhite

By Philip Lorenz III
Aerospace Testing Alliance

AEDC's Larry Wilhite recently got to combine his love of engineering and powered flight to take to the sky in a plane he literally assembled himself.

From an early age Wilhite has been passionate about mathematics and fascinated with anything relating to science, especially computers.

Combined with his fascination for aircraft, he had always enjoyed the hands-on aspects of science and technology.

"There's a neat Dilbert cartoon that talks about having the 'knack,'" said Wilhite, who is the section manager for ATA's control and data systems development branch. "I think most people who are sort of like us, left-brained people, [see] those kinds of talents start coming out, the ability to fix things early on. I've always wanted to be an engineer and work with computers and luckily enough I was able to get there."

Around 32 years ago the Bolivar, Tenn., native also took flying lessons and earned his wings as a

private pilot while completing undergraduate studies for his bachelor's degree in electrical engineering at Auburn University.

"Summer was coming. I was taking lighter course loads, so I thought I'd go out and learn how to be a pilot. I'd always wanted to do it," he recalled. "So, I went through the Auburn School of Aviation to get my pilot's license. I had to work a second job to get money to do that. Of course, it was a lot less expensive then."

In 1976, Wilhite earned a graduate degree from Auburn in electrical engineering. He then worked for the Federal Aviation Administration, traveling all over the Southeast and installing en-route radio systems. For the next few years, he rented planes and flew when he had the time and money. This provided a unique opportunity to both see a variety of planes and get the opportunity to fly some of them.

Shortly after, he gained employment at AEDC; and before long, he was married and raising a family.

Wilhite said with each passing year, dreams of taking to the sky seemed to



Larry Wilhite, section manager for ATA's control and data systems development branch, built an RV-7A aircraft from a kit purchased from Van's Aircraft Corp., based in Oregon. The electrical engineer took his project on its maiden flight on Sept. 2. (Photo provided)

be mere memories of the past, rather than visions of the future.

Five years ago a combination of events brought Wilhite to a major decision. His adult children, Jake and Haley, were leaving home and gaining their independence.

There finally appeared to be time to consider tackling "a big project."

"A co-worker named Brent Morris was building an airplane, a Vans Aircraft, RV-9," Wilhite said. "I [was] talking to him about it and how much it cost – got to thinking 'Was that even possible for me to do something like that – get back into flying?"

"Brent and I went to Oshkosh, 'The Greatest Aviation Celebration in the World', looked around and all these people were doing what I wanted to do and most the same age as I was," Wilhite recalled. "I saw these airplanes, put my hands on them. I saw these people and I said these people are just like me. If they can do it, I ought to be able to do this."

Wilhite wanted to do more than buy a plane and renew his pilot's license; he wanted a challenge. He wanted to build his own aircraft from a kit. Wilhite was trying to figure a way to bring up the idea to his wife Teresa when an opportunity arose.

"I set up our next vacation in Oregon," Wilhite said. "It was a ruse to get her there because I wanted to go by Van's Aircraft and I wanted to go sit in this airplane to make sure I could fit in it, and she could fit in it, that we'd be somewhat

comfortable in this smaller airplane."

The visit worked as planned and helped to win his wife over to the idea of Wilhite getting back into the pilot's seat and building his own plane. Five years later, he had finished building it, which was no small feat.

Wilhite said putting the plane together was a great adventure, but "a big job" that took him approximately 2,500 hours to actually do the material preparation and assembly. He acknowledged the time was considerably longer when it came to all the planning and problem solving required with a project of such complexity.

"It was probably [closer to] 30,000 hours involved, trying to figure out all the different options, because the kit is really just the airframe," he said, explaining that the other components were purchased separately. "So you still have the avionics to deal with and the engine and prop, etc."

In the process of building his plane, Wilhite attended a week-long class provided by the company that supplies the airplane kit. There he learned how to work with metal and some of the finer details of fabrication.

"I went to that school and [among other things] I learned how to rivet," he said. "There's about a mil-

lion of them in this airplane. I can set a rivet just about any way there is, now. And I know how to drill them out, too. Because if I put in 900,000 I probably drilled out 200,000 because I didn't do them all right."

On Sept. 2, Wilhite took his new airplane for its maiden flight, with his wife in attendance to witness the event.

"I had a little trouble with the startup, I had to come back in and change a spark plug," he recalled. "I went back out and this time it started up right. So, I said, 'OK, I'm going'. I throttled up and before I knew it, I was up to flying speed, pulled back on the stick a little bit and it leapt right off the runway - I've played that over in my head a 100 times."

Wilhite kept the plane in the air for about 25 minutes until he was certain that all the gauges in his plane were functioning properly.

"[Then] I made a pretty good landing and rolled [the aircraft] up to the hangar there. And I couldn't even get out of the airplane, I was so spent. I couldn't budge. It took me 20 minutes to get up the energy just to get up - all that adrenaline, tension, and of course, in my head I'm going over and over again all the things that occurred during the flight."

2011

Year in Review



Chief of Staff of the Air Force Gen. Norton A. Schwartz was in Nashville Feb. 2-4 for the U.S. Air Force Test & Evaluation Days conference. Test and evaluation and acquisition professionals from the U.S. military services, allied nations, industry partners and academia attended this year's event, which was sponsored by Jacob's Technology, ATA and the American Institute of Aeronautics and Astronautics.



AEDC Commander Col. Michael Panarisi spoke Feb. 16 at the AEDC-operated National Full-Scale Aerodynamics Complex at NASA Ames in California. The event was held to inform the public about a Department of Energy-sponsored truck test at NFAC. The test involved a trailer that was outfitted with special aerodynamic attachments to examine the effects on fuel consumption.

The Rolls-Royce AE3007H growth engine, which is the power plant for the RQ-4 Global Hawk unmanned aircraft system, underwent altitude testing at AEDC's T-4 test cell. The engine has upgraded turbine hardware and an improved combustor that are aimed at enabling the engine to have greater service life.



The Arnold Community Council organized a group of two dozen people to head to Washington, D.C., and advocate for AEDC. The group asked lawmakers to fund two military construction projects and establish a special trade zone for AEDC to increase workload at the base.



AEDC workers lent their time to those affected by flooding in Nashville on May 3.



A full-size UH-60A Blackhawk helicopter rotor was the subject of tests conducted by NASA's Subsonic Rotary Wing Project. NASA collaborated with the U.S. Army and the U.S. Air Force at the National Full-Scale Aerodynamics Facility at NASA's Ames Research Center in Moffett Field, California. The test series that started in January and ended in May was designed to gather data on the rotor blades and air movement that the blades create in hopes of making new designs quieter, faster and more fuel efficient.



An F110 engine that powers the F-16 Fighting Falcon underwent performance testing using a 50/50 blend of JP-8 conventional aviation fuel and a bio-fuel derived from the oil contained in the seed of the camelina plant, commonly known as false or wild flax.



AEDC will save money thanks to a new compressed air system that will be completed at the end of 2011. The system already is saving money in maintenance and energy costs. The old system was inefficient in its use of electricity to drive huge compressor motors and the need to "bleed off" a great deal of compressed air that it didn't use.



AEDC Commander Col. Michael Panarisi shows off samples of custom-fabricated work in the Model and Machine Shop to AFMC vice commander Lt. Gen. Janet C. Wolfenbarger during her first visit to AEDC June 11.



After taking the oath in February, AEDC police officers are now recognized under Tennessee Code Annotated as a legal entity for Police Officer Standards and Training (POST) certification. The certification means Arnold can now certify its own officers as well as continue to perform mutual aid and other local services.



Ed Walker, utility operator in the Cooling Water section of the Utilities Operations Branch, shows his son Garrett the cooling water configuration in the Aeropropulsion Systems Test Facility exhaust building. More than 35 middle and high school students visited AEDC March 9 for Job Shadow Day.



In April, Arnold's Company Grade Officers donned weighted rucksacks and marched on April 8 to raise money for a memorial plaque. The 19 enlisted and officers who took part raised \$1,278 for the dedication plaque in honor of Maj. Gen. Winfield S. Harpe, who died when the F-16 he was piloting crashed during a training mission near Toerreon AFB outside Madrid, Spain in December of 1988. The memorial plaque was installed in July in front of the F-16 on display in front of Gate 2.



Bates



Davis

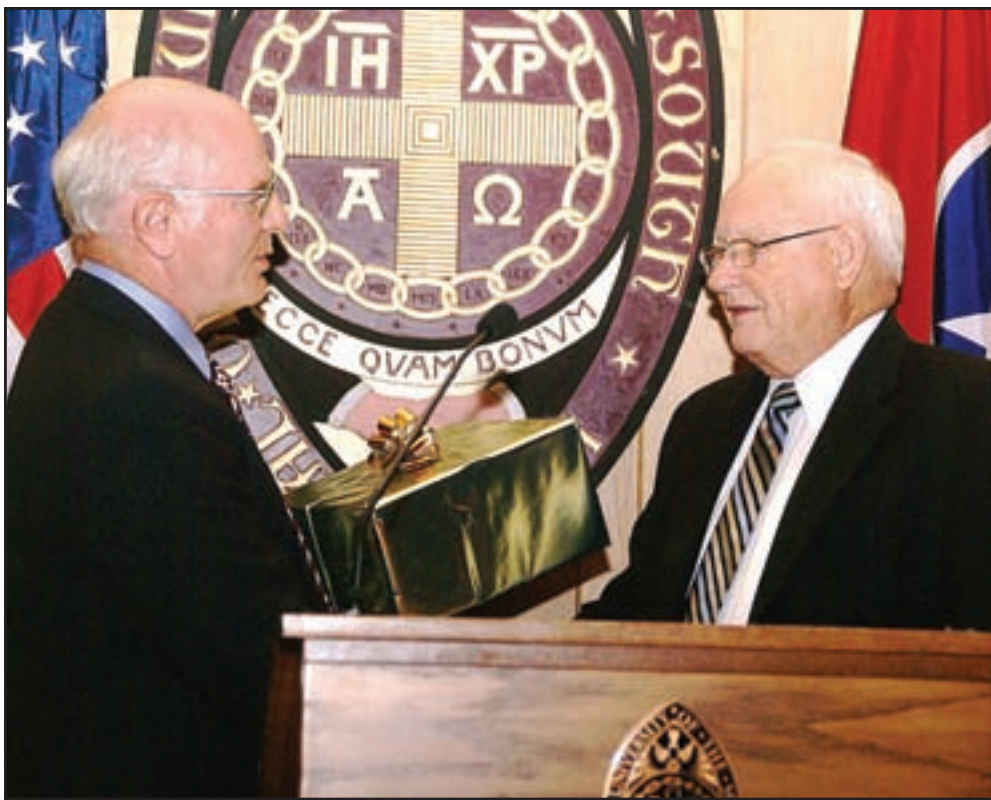


Powell

In June, AEDC inducted two new AEDC Fellows and one Lifetime Achievement Fellow at the annual Fellows banquet. New Fellows Dr. Milt Davis Jr. and Dr. Stan Powell joined 59 others selected for the honor since the program began in 1989. William Bates was honored as a Lifetime Achievement Fellow for making significant and exceptionally valuable contributions to AEDC throughout his career.



On Sept. 11, 11 AEDC firefighters joined with other firefighters from the area to take part in the Nashville Stair Climb. The firefighters climbed the stairs in the Pinnacle at Symphony Place building in Nashville while wearing personal protection equipment (PPE) with an air pack – totaling about 60 pounds.



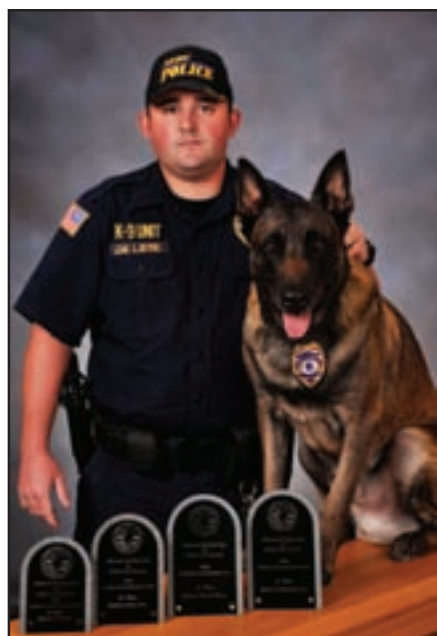
The Arnold Community Council 2010 Annual Banquet took place Nov. 16. Outgoing council president Bill Comer was honored by incoming president Mike Wiedemer.



Col. Michael Panarisi, AEDC commander, sits in a backhoe as the team responsible for the Space Threat Assessment Testbed (STAT) ground test facility assembled recently to mark its debut. STAT will create a realistic space environment to perform developmental and early operational testing of space hardware for the Department of Defense, the National Reconnaissance Office and other agencies against man-made threats and naturally occurring environmental phenomena. STAT will simulate the environmental conditions existing at various orbits and self-induced effects. This system will also emulate man-made threats to perform system test and evaluation. STAT is located in AEDC's Space Systems Effects Facility.



A bust honoring Marine Corps Lance Cpl. Gregory A. Posey was unveiled Nov. 20 at the public square in Winchester. The unveiling was a project of Operation Never Forget, and virtually all of the funds were donated by ATA and AEDC.



Arnold Police Department's K-9 team of Officer Jason Layne and Bikkel, left, was among the top finishers at the American Working Dog Police Academy Olympics in August. Office of Special Investigation special agent-in-charge Rob Redmon, above, became the first Air Force OSI agent to attend the FBI National Academy.

Arnold Golf Course 454-7076

Mulligan's Coffee Bar and Grill now open. An expanded breakfast and lunch menu as well as a great selection of popular beverages are in store for customers at Mulligan's Coffee Bar and Grill. Hours are 6:30 a.m. – 2 p.m. Monday through Friday and 7 a.m. – 2 p.m. on Saturday and Sunday. A new feature is the addition of the "We Proudly Brew" coffee bar featuring Starbucks beverages including hot and iced coffee, lattes, macchiatos, frappuccinos, espressos, hot chocolate and a variety of teas. A convenient "to go" parking area has been created right outside the Mulligan's side door. A punch card program offers \$2 off any purchase after getting five punches (given with any purchase). The newest addition to Mulligan's is the installation of Wi-Fi.

Arnold Lakeside Center 454-3350

Football Frenzy is winding down so don't miss your chance to enter for prizes. While attending a Football Frenzy game event, all Members First Plus members are eligible to enter to win a trip to two regular games and the Super Bowl. Each winner will receive two airline tickets, hotel accommodations, rental car and two game tickets. A bonus drawing will be held for ten lucky winners to receive \$500 each. Only one entry per member per visit. Members and nonmembers are eligible to compete in local contests and giveaways. Food specials are offered with member and non-member prices or order from the Hap's Pizza or Express menus. Regular dinner menu is available on Saturday night in the Four Seasons dining room from 5-9 p.m. January dates, times, specials and contests are listed below. The grand finale of Football Frenzy will be the Super Bowl on Feb. 6 with a Super Snack Buffet to include pizza, wings, chips and dip and more for \$6.99 members and \$7.99 nonmembers. Watch for more details or call 454-3350.

January dates, times, specials and contests:

Jan. 7: 3:30-10 p.m.

Club sandwich and fries, \$5.50 member, \$6.50 non-member. College Football Trivia

Jan. 8: 11:30 a.m.–10 p.m.

25-cent wings for members only. College Football Trivia

Jan. 16: 11:30 a.m.–8 p.m.

Half-price pizzas for members only. First Half Yardage

Jan. 23: 11:30 a.m.–8 p.m.

"Big Dawg" supersized chili dog and fries, \$4.95 member, \$5.95 nonmember NFL Trivia

Friday night dining room specials available from 4-9 p.m. Jan. 7: Onion and feta-crusted New York strip, \$13.95 members, \$14.95 nonmembers. First Friday Jam is 6-10 p.m. **Jan. 14:** Prime rib for two, \$31.95 for members, \$32.95 for nonmembers. Second Friday Karaoke 6-10 p.m. Member's Special: 25-cent wings and half-priced pizzas 7-9 p.m.

Jan. 21: Seared Ahi tuna with strawberry sauce, \$13.95 members, \$14.95 nonmembers. **Jan. 28:** Angel chicken pasta, \$9.95 members and \$10.95 for nonmembers. Last Friday Trivia 6 p.m. All specials and times are subject to change without notice. Please call ahead to ensure availability and openings.

Saturday availability and specials: Jan. 8: Chicken Wellington, \$11.95 members, \$12.95 nonmembers. **Jan. 15:** Never-ending pasta bowl, \$8.95 member, \$9.95 non-member. **Jan. 22:** Lynchburg ribeye, \$13.95 members, \$14.95 nonmembers. **Jan. 29:** Bison filet, \$18.95 members, \$19.95 nonmembers. The dining room is open on Saturdays from 5-9 p.m. unless otherwise specified. Please call for reservations to ensure these specials are available. All specials and times are subject to change without notice. Please call ahead to ensure availability and openings.

Movie nights are every Thursday with movie start time of 6 p.m. and dinner available from the Express or Pizza menus from 5-8 p.m. The schedule for January is: **Jan. 13** – "Takers," rated PG-13 starring Matt Dillon and Michael Ealy. A notorious group of criminals continue to baffle police by pulling off perfectly-executed bank robberies. But when they attempt to pull off one last job with more money at stake than ever before, the crew may find their plans interrupted by a hardened detective who is determined to solve the case. **Jan. 20** – "Secretariat," rated PG starring Diane Lane and John Malkovich. The true story of Secretariat, the legendary horse whose record-breaking Triple Crown win has never been equaled, and his owner Penny Chenery Tweedy, a suburban Denver housewife who breaks through the gender barrier in her single-minded determination to usher her horse to greatness. **Jan. 27** – "You Again," rated PG starring Kristen Bell, Jamie Lee Curtis and Sigourney Weaver. Successful PR pro Marni heads home for her older brother's wedding and discovers that he's marrying her high school arch nemesis, who's conveniently forgotten their problematic past. Then the bride's jet-setting aunt bursts in and Marni's not-so-jet-setting mom comes face to face with her own high school rival. The claws come out and old wounds are opened in this crazy comedy that proves that not all rivalries are forever.

Second Friday Karaoke will be Jan. 14 from 6-10 p.m. All ages are welcome from 6-8 p.m. but 8-10 p.m. is reserved for adults only. Special for members only 7-9 p.m. – 25-cent wings and half-priced pizzas. Dining room special will be Lynchburg ribeye for \$13.95 members and \$14.95 nonmembers served 4-9 p.m. Call ahead for dinner reservations at 454-3350.

Arnold Lakeside Center will open to the public on Jan. 22 to host the **Second Annual Bridal Fair**. The event will be from 1-5 p.m. with multiple vendors expected. The ALC staff will be available for menu planning and event booking for

eligible patrons. Those who book an event will receive a complimentary Air Force Catering Wedding Planner (while supplies last). A deli buffet will be served for \$6.95 for Members First Plus members, \$7.95 for nonmembers and \$3.95 for ages 12 and under. Bottled water and sodas will be available throughout the day for \$1.25 each. Call 454-3350 for more information.

Trivia Contest returns at 6 p.m. Jan. 28. Teams can have up to four people. No cell phones are permitted during the event. Anyone using a phone while a question is underway will be disqualified. A tutorial will be given promptly at 6 p.m. to all participants prior to the start of the game. The game will begin immediately following the tutorial. Six rounds of questions will be administered consisting of three questions in each round. Each round is worth 10 points. The team with the most points at the end will have their choice of available prizes. Remaining teams will select prizes in order of finish in point standings. Ties will be broken by a trivia play-off.

Wednesday Lunch is available for dine in or carry out from 11 a.m. – 1 p.m. Call ahead to 454-5555 to place orders. No delivery available. For better service, you may call on any day and preorder. In addition to the Hap's Pizza menu, chef salad is available for \$4.50 which comes with ham, turkey, cheese and boiled eggs. Add grilled or fried chicken for \$2 more. Call to see what other specials are available each week. The ALC will be closed Jan. 12.

Walt Disney Salute to Armed Forces now through Sept. 24, 2011. Discount tickets are available to active or retired military including activated members of National Guard and Reserves plus active or retired members of Coast Guard. A 4-day park hopper or 4-day base ticket with water park is \$133 and a 4-day park hopper with water park is \$160. Maximum of six tickets per person. Blackout dates are Dec. 27-31, Apr. 17-23, 2011 plus July 4, 2011 at Magic Kingdom park. Call Melissa, 454-3303, at Information, Tickets and Travel (ITT) for more information about these and other tickets.

Family Member/Youth Programs (FamY) 454-3227

Youth Movie Night will be Jan. 7 from 5-7 p.m. Ages 9 and up are invited to the Open Rec Center to watch a movie. There will be free popcorn, juice and water.

4-H is back Jan. 27 meeting from 4:30 to 5:30 p.m. The 4-H program offers many different opportunities such as the Demonstration Contest, Clover Bowl, Judging Teams, showing livestock, camps and many more opportunities. When you join 4-H you are joining the world's largest youth organization. 4-H is also not just an American organization as there are 4-H clubs in over 80 countries around the world. Some of the big contests that 4-H really encourages are the speak-

Mission Support Division hours of operation:

Arnold Lakeside Center – Special function luncheons available. Call 454-3350 for arrangements. Catering/Management offices Tuesday-Friday 10 a.m.–3 p.m.; Lunch: limited menu Wednesdays, 11 a.m. – 1 p.m., call 454-5555 to place orders; Dinner: Arnold Express Menu or Hap's Pizza only Thursday 5-8 p.m., dinner or Arnold Express Menus and Hap's Pizza Friday 4-9 p.m. and Saturday 5-9 p.m.; Main Bar Thursday 5-8 p.m., Friday 3:30-10 p.m. and Saturday 5-10 p.m.; Social Hour Friday 4-6 p.m., Movie Night Thursday 6 p.m.

Family Member/Youth Programs – Tuesday through Friday 10 a.m. – 5 p.m., Saturday 12-5 p.m., First Friday Movie Night 5-7 p.m.

Outdoor Rec – Main Office, Check In and Auto Shop Tuesday through Saturday 10 a.m. – 5 p.m., Marina by appointment only.

Fitness Center – Monday-Friday 5 a.m.–9 p.m.; Saturday 8 a.m.–4 p.m.; Sunday 12-5 p.m.

Arnold Golf Course – Pro Shop 8 a.m. – 5:30 p.m., Driving Range open 24 hours with prepurchased key card. Mulligan's Grill: 6:30 a.m. – 2 p.m. Monday through Friday, 7 a.m. – 2 p.m. Saturday and Sunday.

Recycling – Monday through Friday 7 a.m. – 4 p.m.

Wingo Inn – Monday through Friday 7 a.m. – 6 p.m., Saturday and Sunday 8 a.m. – 4 p.m.

Barber Shop: by appointment – Monday, Wednesday & Friday 8 a.m.–2p.m.; Thursday 8 a.m.–noon.

ing events and the poster contest. These events allow 4-Hers to express their creative sides and develop skills that will come in handy later on in life. 4-H also offers many different contests, camps, and honor's programs that the members can become involved with. 4-H is always striving to teach young adults how to become better citizens and leaders through the many programs available. Call 454-3277 for more information and to sign-up. Arnold Youth Programs 4-H Club is open to all AEDC-affiliated children from fourth grade to 12th grade.

Fitness Center 454-6440

Intramural Basketball League set to begin Jan. 18. Games will be played on Tuesdays and Thursdays at 6, 7 and 8 p.m. Sign up as individuals or teams. Must be age 16 or older. Deadline to sign up is Jan. 13.

3 Point Shoot Out will be held Jan. 26 at 5:15 p.m. Participants will shoot two shots from each of five locations earning one point for each shot made. Choose to use the "Money Ball" anytime and it is worth two points. Top three point earners will win prizes.

Karate class is held 3-5 p.m. Tuesdays and Thursdays on the main gym floor. This class is taught by volunteer Don Gardner of

ATA. For more information on these classes contact Don at 454-3497.

The Fitness Center staff welcomes any individual request for assistance in developing a specialized fitness plan to help complete your fitness and health objectives. Call for assessments, instruction and fitness/workout plans.

Outdoor Rec (ODR) 454-6084

FamCamp and Crockett Cove cut prices for winter months. Outdoor Rec is marking down prices by half for camping now through February 2011. Call 454-6084 for further information or to make reservations.

Paintball is set for Jan. 8. Ages 10 and older are invited to play. Meet at Outdoor Rec. at 9:30 a.m. Cost is \$20 and includes lunch. Remember to wear long-sleeved shirts and long pants.

Outdoor Rec will conduct **How to Take Care of Your Car Class** at 10 a.m. Jan. 22 for ages 15 and older. This class will teach the proper way to take care of the inner workings of your vehicle. Learn how to change the tires, oil and other fluids in your car. Also, get a lesson on how to utilize the Outdoor Rec Auto Bay.

Once you learn these

basics you can use the auto bay to take care of your own car. Meet at the main Outdoor Rec building and then head down to the auto bay for hands-on instruction. The class should last between an hour and a half to two hours depending on how many attend and the number of questions presented. There is no cost for the class but deadline to sign up is Jan. 19. Call 454-6084 to sign up or for questions regarding this class or auto bay usage and fees.

Sweetheart Luncheon Cruise coming Feb. 13. Outdoor Rec is heading to Chattanooga for the Southern Belle Riverboat Cruise to celebrate Valentine's Day. Ages 16 and up are invited to bring their sweetheart for a cruise on the Tennessee River.

Lunch will be baby Bella chicken with fettuccine and cracked peppered round of beef with baby red potatoes, mixed vegetable medley, yeast dinner rolls and a special dessert.

Enjoy live entertainment while dining and taking in the scenery. Meet at ODR at 8:15 a.m. to prepare for the journey to Chattanooga and the two hour luncheon cruise. Estimated time of return to ODR is 2:45 p.m. Cost is \$40 and reservations are required by Feb. 2.

There must be a minimum of 20 to attend and max space is for 26.

The fee is nonrefundable if cancelled after Feb. 2. Be sure to bring your camera and extra clothing depending on the weather.

Milestones



William Sickles
ATA, 35 years

35 YEARS

Glenda Snipes, ATA
Bonnie Heikkinen, ATA

30 YEARS

Janet Gammon, ATA

25 YEARS

Eddie Patton, ATA
Lisa Yatsko, ATA

20 YEARS

Steven Thompson, ATA
Kathleen Bishop, ATA
Rick Kelley, ATA

15 YEARS

Jason, Patton, ATA
Johnny Jackson, ATA
Duane Stephens, ATA

10 YEARS

Rosemary Matty, AF
John Prebola Jr., ATA
Cindy Prebola, ATA
Eric Van Horn, ATA
Brian Farless, ATA

5 YEARS

Fred Hutchinson, ATA
Clinton Ellison, ATA
Tracie Burnett, ATA
Brandon Bailey, ATA
Mark Olson, ATA

OUTBOUND MILITARY

Lisa Schappacher, AF

RETIREMENTS

Harry E. Clark, ATA
Renda B. Minor, ATA

NEW HIRES

Harry Clark, AF
Michael Schleider, AF
Dan Wyman, AF

Commander's Fit Tip: Burn, baby, burn

By Col. Michael Panarisi
AEDC Commander

We get this question all the time: "What's the right workout intensity to lose weight?"

Like just about every other question about the human body, the answer is "It depends!" But what it depends on may not be what you think.

Much of the advice on workout intensity and weight loss focuses on the metabolic processes that occur during a workout. But what about after the workout? What about sustainability? What about injury risk? All these factors must weigh into the decision of just how hard to work out, assuming of course, that pure weight loss is your goal. My guess is, that's rarely the case.

Most of the workout equipment at the gym will display your heart rate while you exercise, and many include illustrations that recommend a target heart rate based on your "goal." It's common to see a "aerobic zone" or "fat burn zone" label on these machines.

These charts will lead you to believe that if weight loss is your goal, you should keep your exercise intensity on the lower end of the scale, working on the science that the intensity of

your workout will influence what "fuel" your body will choose to burn during the workout.

The science is sound, and it's pretty clear that intense workouts will inhibit the enzymatic reactions that are precursors to burning fat. But that's only part of the "fat burning" equation. Low-intensity workouts are much more sustainable, easier to tolerate, and generally result in fewer aches, pains, and injuries. All these factors make a low-intensity workout an attractive option. But there are trade-offs.

Perhaps the biggest drawback is time. Low-intensity workouts burn calories more slowly, and this reduced rate can make weight loss seem like a glacial process.

Think of it this way. It takes nearly the same amount of work (and calories) to walk a mile and jog a mile. As the speed increases, the burn rate will go up some, but at the lower end, a mile is about 100 calories. Walking that mile will take over 20 minutes, while a jog might take only 10 or 12. Since you need to burn 3,500 calories to lose a pound it will take much longer if you try to "walk it off." Plus, one of the greatest benefits of a vigorous workout is that you will steadily increase the "burn

rate" your body needs when you are not working out. And you spend much more time NOT working out, so increasing that resting burn rate is a big factor in weight loss success.

But most importantly, pure weight loss is likely not your goal. Your goals probably include increased aerobic fitness, increased strength, or if you are struggling with your PT test, improving that score is probably part of the picture. If so, you'll be disappointed with your results if you limit your routines to the low end of the scales. So what's the answer? Diversify, of course! One of the most successful routines is the "hard day, light day" regimen, and the low intensity, "fat burning" workout is a good option for the "light day" events. That doesn't imply that "hard day" has to be a totally exhaustive routine. On the contrary, you just need to challenge yourself enough to induce an adaptation.

For most, all you need to do is get just beyond where you can talk. If you crank it up to where you can just-get-one-word-out-at-a-time without gasping, you should be close.

No matter what your goal, it's unlikely a single regimen will work. Keep mixing it up, and give "light day, hard day" a try.

Geotagging craze can affect privacy and security

Privacy and security aren't what they used to be. With advancements in technology, enhanced GPS capabilities and smartphones with built-in GPS, managing privacy and security is a full-time job.

But with new technologies come new risks. Today, more than ever, it is vitally important that Air Force leaders, Airmen and

Air Force civilians understand what kind of data they are broadcasting and what they can do to protect themselves and their families.

Geotagging

Geotagging is the process of adding geographical identification to photographs, video, websites and SMS messages. It is

the equivalent of adding a 10-digit grid coordinate to everything you post on the Internet.

Geotags are automatically embedded in pictures taken with smartphones. Many people are unaware of the fact that the photos they take with their smartphones and load to the Internet have been geotagged.

Photos posted to photo sharing sites like Flickr and Picasa can also be tagged with location, but it is not an automatic function.

Photos have used geotagging for quite some time.

Certain formats like the JPEG format allow for geographical information to be embedded within the image and then read by picture viewers. This shows the exact location where a picture was taken.

Most modern digital cameras do not automatically add geolocation metadata to pictures, but that is not always true. Camera owners should study their camera's manual and understand how to turn off GPS functions.

On photo sharing sites, people can tag a location on their photos, even if their camera does not have a GPS function. A simple search the Army conducted for "Afghanistan" on Flickr revealed thousands of location tagged photographs that have been uploaded.

Tagging photos with an exact location on the Inter-

net allows random people to track an individual's location and correlate it with other information.

Military members deploy to areas all over the world. Some locations are public; others are classified. Soldiers should not tag their uploaded photos with a location.

Publishing photos of classified locations can be detrimental to mission success, and such actions are in violation of the Uniform Code of Military Justice.

Location-based social networking

Location-based social networking is quickly growing in popularity. A variety of applications are capitalizing on users' desire to broadcast their geographic location. Most location-based social networking applications focus on "checking in" at various locations to earn points, badges, discounts and other geo-related awards.

The increased popularity of these applications is changing the way we as a digital culture view security and privacy on an individual level. These

changes in perception are also creating OPSEC concerns.

Foursquare is a location-based social networking website for mobile devices. Users "check in" at various places using a mobile website. They are then awarded points and sometimes "badges."

Users of Foursquare share their location with friends, meet new people and get coupons. Users can also connect and publish their "check ins" to Facebook and Twitter. If someone is not a friend on Foursquare they can still track your whereabouts through Facebook.

Facebook's "Places" is similar to Foursquare in that it gives an individual's location when the user posts information using a mobile application. This function is automatically active on all Facebook accounts until disabled.

Gowalla is another location-based social networking application that functions much like Foursquare and Facebook Places. Users can build a Passport which includes a collection of stamps from the places users have been.

Gowalla users can also post photos and submit tips at various locations.

SCVNGR is a location-based social networking application that takes "checking in" a step further by allowing companies, educational institutions and organizations to build challenges inside the platform. Users are encouraged to complete the challenges in order to earn points, badges or real-life discounts and coupons.

Why are these applications and others like them potentially dangerous?

Location-based social networking applications allow strangers to track your movements every day. If they watch someone long enough they will know exactly when and where to find that person on any given day.

By tracking movements and aggregating information, strangers can determine where someone lives and works. And if certain applications are used daily around Air Force populations, an enemy can determine potential targets. One Airman exposing his or her location can affect the entire mission.

Military members conducting operations in classified areas should not use location-based social networking services. These services will bring the enemy right to their doorstep.

Avoid giving away too much

Users can delete geotagged photos, but once the information is out there, it's out of the user's hands.

Even if posted briefly, the enemy can capture vital information and record exact grid coordinates of troop populations.

One of the simplest ways to avoid displaying too much information is to disable the geotagging function on smartphones.

Since most smartphones automatically display geographical information, it takes a little more effort on the user's part to protect their privacy.

It's important that all users understand their specific systems and make efforts to turn off their phone's geotagging function.