



HIGH MACH

Serving the World's Premier Flight Simulation Test Complex



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March 12 proclaimed AEDC Day in Tennessee

By Raquel March
ATA Public Affairs

The Tennessee Senate and House of Representatives officially declared March 12 as Arnold Engineering Development Complex (AEDC) Day at a proclamation presentation.

Representative Judd Matheny and Senator Janice Bowling presented a House Joint Resolution 718 to honor and commemorate AEDC due to the Complex's crucial role in keep-

ing the United States on the cutting edge of aerospace technology by conducting ground flight testing. The resolution states that the result of the testing conducted by AEDC personnel, past and present, has helped America maintain air dominance and ensured that American military personnel have been free from attack by manned enemy aircraft.

AEDC leadership and Arnold Community Council (ACC) members attended the procla-

mation presentation at the state capitol.

AEDC representative and Test Support Division Director Col. James Krajewski accepted the proclamation at the event and expressed gratitude for such an honor for the Complex.

"The proclamation does a fine job expressing what AEDC does for our nation; but doesn't mention the important work our communities around the base do for the men and women who work at AEDC," he said.

"I think, if anything, this proclamation is a testament to how these outstanding communities in Southern Middle Tennessee contribute day in and day out to the defense of our great nation."

ACC President Ben Craig said, "It is a great honor to have both the State of Tennessee Senate and the House chambers recognize the hard work and dedication of all employees of AEDC by issuing a proclamation for March 12 as AEDC Day. "The added bonus to the cere-

monies was Congressman Diane Black attending this event. She is co-chairing the Congressional Range and Test Center Caucus focusing on the importance of ranges and test centers such as AEDC. Congressman Black's support and dedication to AEDC and ACC is unprecedented and I personally appreciate her efforts to benefit the employees and surrounding communities."

The ACC promotes, protects

See AEDC DAY, page 6

Orion Service Module complete



Engineers prepare Orion's service module for installation of the fairings that will protect it during launch this fall when Orion launches on its first mission. The service module, along with its fairings, is now complete. (NASA photo)
See page 3 for a complete story.

AEDC's transformation engineered for the future

By Jason Austin
AEDC Public Affairs

The Arnold Engineering Development Complex is gearing up for a 'revolutionary change' according to a recent email to the workforce from AEDC Commander Col. Raymond Toth.

However, the change is more than just a different contractual construct.

"Our nation faces many challenges," Toth wrote in the AEDC Strategic Plan 2014. "From the 'pivot to the Pacific' to our national debt and resulting budget reductions, the march toward the future is uncertain but inevitable. If Arnold Engineering Development Complex (AEDC) is going to remain relevant, we must transform ourselves and the way we work to meet the nation's changing acquisition priorities."

To guide AEDC's transformation, Toth along with other AEDC leaders drafted a vision statement for AEDC which focuses on a path toward 2024. From that vision, goals were established and an action plan took shape.

AEDC's 2024 Vision and the associated goal narratives are now available for the workforce in the "AEDC Strategic Plan 2014."

Limited hardcopies will be distributed among the Air Force and Aerospace Testing Alliance employees, but the document can also be found on the Arnold Air Force Base public website, www.arnold.af.mil - look for it on the homepage in the "Spotlight on AEDC" section; or go directly to <http://1.usa.gov/1ILTt5v>.

AEDC Strategic Plan 2014 was developed by leaders from every directorate, branch, and department, who after several months of study and discussion, participated in a three-day offsite to define the goals inherent to the 2024 Vision, develop courses of action for each goal, and assign responsibilities for those goals and actions.

Since then, goal owners report progress weekly and provide quarterly briefings on their goals

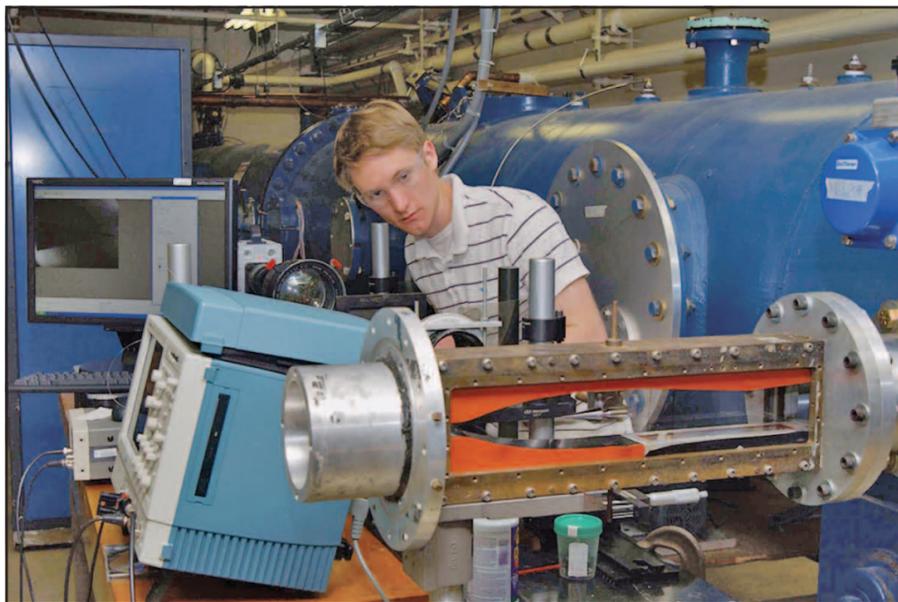
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Pilot mentoring program propels the future of hypersonics and young engineers

By Raquel March
ATA Public Affairs

Hypersonic research and several young engineers are reaping the benefits of a pilot mentoring program at AEDC's Hypervelocity Wind Tunnel 9, White Oak, Md. The program, the Hypersonic Center of Testing Excellence (HCoTE), began in FY2011 and combines two organizations that provide funding, instruction and testing.

"In the short time we have been running this pilot program, we have seen extraordinary gains in test technology and employee growth and we have already seen students placed in the T&E (testing and evaluation) enterprise - one at Tunnel 9 and one at Pax, Navy [Naval Air Systems Command, Patuxent River, Md. - NAVAIRSYS-COM]," said Dan Marren, the AEDC White Oak Site director and HCoTE co-founder.



Colin Vandercreek, a University of Maryland student, is shown here working in the AEDC White Oak Student Lab developing non-intrusive diagnostics for use in the Hypervelocity Wind tunnel 9. (Photo provided)

"Hardly a week goes by that I am not reminded of the gains from this activity."

The Air Force Office of Sci-

entific Research (AFOSR), one of the funding organizations, teamed with the University of Maryland to fund

students and research which began in fiscal 2011 and will

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HIGH MACH

Arnold Engineering Development Complex
An Air Force Materiel Command Test Complex

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The complex's vision: Be the nation's best value ground test and analysis source for aerospace and defense systems.



Core Values

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



Vision

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

Core Values

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

Safety in the face of change, better than average

ATA Safety and Health Group

We're all aware that change is coming to AEDC and many of us are concerned about how that change will impact us personally. We're being reminded to "maintain situational awareness" and "stay focused." These are things we must do to keep ourselves and our coworkers safe.

We're asked, "What happens when injuries occur?" And we know the answer: Our friends and coworkers are hurt; some of them so much that they're off work for a while and/or can't do their regular

job. They are also hurt away from work and can't live their life to the fullest and do the things they want to do with their family and friends.

And we know what else happens when these injuries occur; much work is involved in working with the injured employee and their management to learn what happened and why and how to prevent future and similar occurrences. This process will continue because it is the right thing to do.

While it's true that we are still hurting ourselves and even one injury is too many, there is a silver lining in the gray cloud of injury

statistics. We are doing something right, and we need to recognize that fact. Even with the unrest that is inevitable with change, we are not "average." If we compare ourselves to the "industry average," we find that we are above average when it comes to safety. If we were simply "average" for the period since October 1, 2013, there'd be five more folks hurt so badly that they would have to have time off work; seven more who would be on restrictions, and 14 others requiring medical treatment beyond first aid. Who would they be? Would you be one?

Thank goodness we're not "that" type of company and thank goodness we have each of you on board helping to create and sustain our culture of caring and helping to keep folks safe.

Let's strive to make our record even better. Let's continue to look out for ourselves and others and to take the time to share ideas that will make the job safer. Let's care enough to talk with a coworker who may be doing something that is not safe. And let's take it one step further: Let's take note of and thank the coworker who is doing the job right.

Tennessee Legislature visits AEDC



Members of the Tennessee Legislature visit AEDC as part of an orientation program provided by the Arnold Community Council (ACC). During a tour of the Propulsion Wind Tunnel 16-foot Supersonic wind tunnel, ACC member Thom Robinson (left) discusses AEDC's mission to Tennessee Lt. Governor Ron Ramsey (2nd from left). Also pictured (l-r) is ACC President Ben Craig and AEDC Public Affairs Deputy Micheal Walton. (Photo by Rick Goodfriend)

Air Force continues force management programs

WASHINGTON (AFNS) – Air Force leaders announced a resumption of all force management programs March 15 following a recently discussed strategic pause.

"After providing senior leadership a chance to evaluate the programs and assess our early progress, we are ready to resume immediate processing of voluntary applications in most categories and begin notifying Airmen of their status," said Lt. Gen. Sam Cox, the Air Force deputy chief of staff for manpower, personnel and services. "We expect

to receive final approval authorities early next week for a select few categories, like rated and health professions, at which point we will be actively processing all voluntary applications."

Notifications to Airmen could start as early as next week, the general added.

Cox also confirmed previously-announced force management boards would proceed as currently scheduled. The eligible populations for those boards will remain the same with the exception of a small group of about 500 Airmen who will no longer be eligible

for the current voluntary or involuntary programs. Those individuals will be personally notified of their eligibility status by the Air Force Personnel Center.

"Resuming the current programs on the previously announced schedules and under the same basic criteria means minimal changes for our Airmen," Cox said.

One item assessed during the pause was the pace of the programs and whether or not the Air Force could achieve required reductions on the original schedule. The analysis revealed the

need to include a second round of programs in 2015.

"Airmen who were eligible for programs during the first round in 2014 will not be eligible for the retention boards in 2015, unless they have specific negative quality force indicators," Cox said.

Ensuring well-performing Airmen are not subject to multiple involuntary programs is key, according to the general.

Details on the nature and timing of the second round of programs will be announced in the coming weeks.

The general contin-

ues to encourage eligible officers and enlisted Airmen to apply for the Temporary Early Retirement Authority and Voluntary Separation Pay programs. The current TERA application window remains open to March 26 and the VSP application window is open to May 1.

For more information on force management, force shaping, reduction in force and other personnel programs, go to the myPers Web site at <https://mypers.af.mil>.

(Courtesy of Air Force Public Affairs Agency, Operating Location - P)

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to Toth. Additionally, the goals and actions are being tied to Fiscal Year 15 and beyond requirements via the Capabilities Analysis and Risk Assess-

ment (CARA) process.

As the AEDC strategic planning process matures, adjustments will be made; however, the Vision 2024 and AEDC Strategic Plan

2014 establish a firm structure around which we will determine AEDC's future.

"In order for us to succeed, everyone must be empowered to think

for themselves, speak up when required, and work smarter," Toth wrote. "It will take our combined efforts, each of us taking small steps to challenge

the status quo, to return AEDC to our original position in acquisition – the place to go when you need solutions to difficult aerospace problems."

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 AEDC web portal at https://papro.arnold.af.mil/PORTAL/images/Smoking_area_map.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 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 three ways: via the AEDC intranet home page, Action Line boxes at the base cafeterias 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

Andrew Fist and Joseph Majdalani wins top prize in international AIAA competition



Andrew Fist and Dr. Joe Majdalani, accept a \$1,000 check as winners of the top prize in the International Graduate Competition for their research paper on "Improved Mean Flow Solution for Solid Rocket Motors". (Photo by Bill Petros)

By Dr. Joseph Majdalani
Auburn University

Andrew Fist, graduate research associate, and Joseph Majdalani, department chair in Aerospace Engineering at Auburn University, took first place for their research paper in the international competition of the masters division at the 52nd American Institute of Aeronautics and Astronautics

(AIAA) sciences meeting, or SciTech 2014.

The award-winning paper, "Improved Mean Flow Solution for Solid Rocket Motors," was presented by Fist and coauthored by Majdalani. This paper introduced a groundbreaking framework for modeling the steady-state motion associated with internal burning cylindrical rocket motors. The paper was writ-

ten based on research that Majdalani performed under a National Science Foundation grant.

"For seven papers to have won 10 awards in four consecutive years at this level of competition is truly a remarkable and tremendous achievement," said Christopher B. Roberts, dean of the Samuel Ginn College of Engineering at Auburn University.

"This is a testament to the hard work, dedication, and high quality research from Dr. Majdalani and his assistants, and clearly their efforts are paying off. I am proud his team is placing the department, and Auburn University, in the spotlight for the industry to take notice and recognize," he said.

The competition, held in January, in National Harbor, Md., featured fi-

nalists from all regions of AIAA (Northeast, Southeast, Central, South Central, Midwest, Western, and international regions). To qualify, Fist and Majdalani had to first compete and earn first place in the masters division of the 64th AIAA southeastern regional student conference. With a total of 170 delegates from 16 universities across the Southeast, participation

was at a record all-time high in Region II, which also happens to be the largest within AIAA.

Fist is from Dayton, Ohio with a BS in Mechanical Engineering from the University of Dayton. He is presently a turbine engine test manager at AEDC, pursuing his graduate education in Mechanical Engineering with Dr. Majdalani as his major advisor.

At your service: Orion Service Module complete

By Brandi Dean
NASA - Johnson Space Center

The second of three major parts of the spacecraft that will launch into orbit on Orion's first mission this fall is complete.

Work has been progressing steadily on all three main parts of Orion – the service module, the crew module and the launch abort system – and recently the service module joined the launch abort system in crossing the finish line.

Orion's service module sits below the crew module and above the rocket that will launch Orion into space. The recently completed service module, which will fly during Orion's first test flight, is a structural representation and will lack many of the key capabilities of the final service module. Service modules on future missions will provide power, heat rejection, the in-space propulsion capability for orbital transfer, attitude control and high-altitude ascent aborts. It will also house water, oxygen and nitrogen for the trip. But because Orion's first mission will be a four-hour-long, unmanned flight test, many of those systems aren't needed just yet. Instead, this first service module will primarily be responsible for the structural support involved in carrying the crew module and launch abort system as they're launched into space.

Since the crew module and launch abort system together weigh more than 37,000 pounds at liftoff, that's no easy task. The crew module gets some help with it from three massive panels, called fairings, that encase the service module and shield it from heat, wind and acoustics. They support

half of the crew module and launch abort system's weight during launch and ascent, before they're jettisoned more than 100 miles up. After that, the loads on Orion are much lower and can be carried by the service module alone.

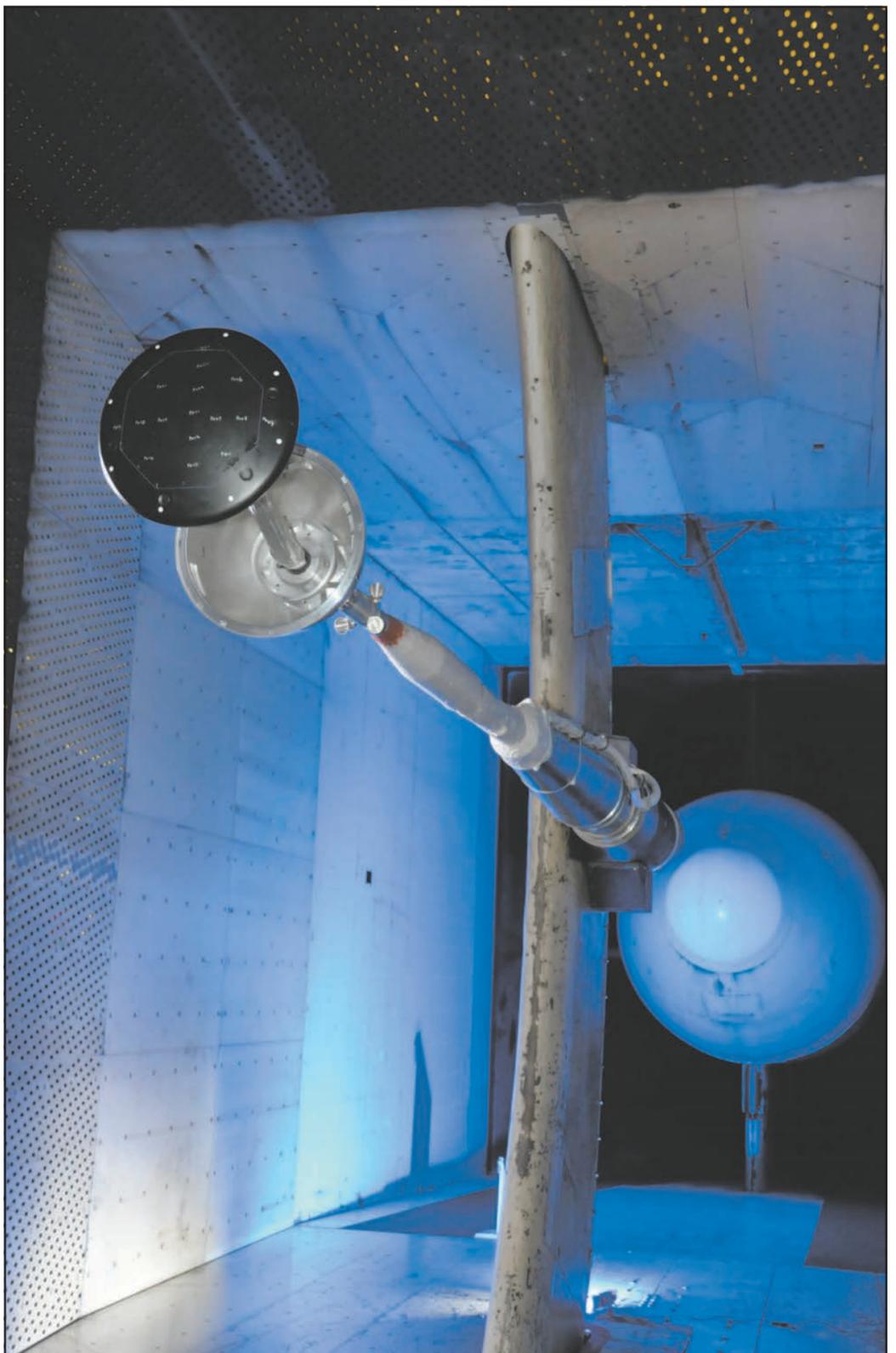
To ensure that the service module and its fairings are up to the challenge, it spent two weeks in February undergoing tests. Engineers will carefully apply small amounts of stress to the structure to test its stiffness and verify it reacts as predicted. If it does, they'll up the ante, pushing and twisting it from multiple directions.

If it can withstand the strain, the engineers will know it's ready for flight.

The launch abort system was completed in December, and the crew module is coming right along. Engineers at Kennedy Space Center recently completed the complex welding that's required to make sure Orion's propulsion and life support fluid systems are leak tight.

To minimize the number of mechanical joints, which are invitations for leaks, the fluid systems are welded together as one piece into a virtual spaghetti bowl that surrounds the Orion pressure vessel. The process required more than 260 individual welds in complicated geometries, each of which was then X-rayed to ensure that it was good.

Over the next three months, Orion's thermal protection system will be installed – tiles on the top of the crew module and the largest heat shield of its kind ever built. With that in place, the crew module, service module and launch abort system will be ready to mate this spring.



NASA CEV/launch abort system tested at AEDC - The Orion crew module and launch abort system model as it appeared in one configuration during the aerodynamic effects testing it underwent in AEDC's 16-foot transonic wind tunnel. (Photo by Rick Goodfriend)

High-speed CARS in use at AEDC

By Vicki Peters

AEDC Contributing Writer

As gas-turbine and hypersonic propulsion systems advance, so must the diagnostic measurement systems used in testing them. The Coherent Anti-Stokes Raman Scattering (CARS) Spectroscopy System is a development of the Small Business Innovative Research (SBIR) program that may be used to make point source temperature measurements in extreme environments, such as in the flowfield of an operating turbine engine.

CARS simultaneously measures temperature and multiple gas concentrations with a high degree of accuracy. The CARS technique uses three laser beams, one red and two green, and focuses the three beams into one location within a gas flowfield. Whether the hot gas flow is exiting a jet engine, or entering the nozzle of a hypersonic wind tunnel, it typically contains nitrogen and oxygen. These gases are optically “excited” by the focused CARS beams, and the gases create a fourth, new laser beam that originates from the focal point of the original three.

The new beam is weaker than the ones that create it, but by sending this new signal beam into sensitive light detection equipment, the color content, or optical spectrum, of the new beam can be determined. This information can be used to define the amount of nitrogen and oxygen present at the CARS beam focal point, along with the temperature of the gas at that location.

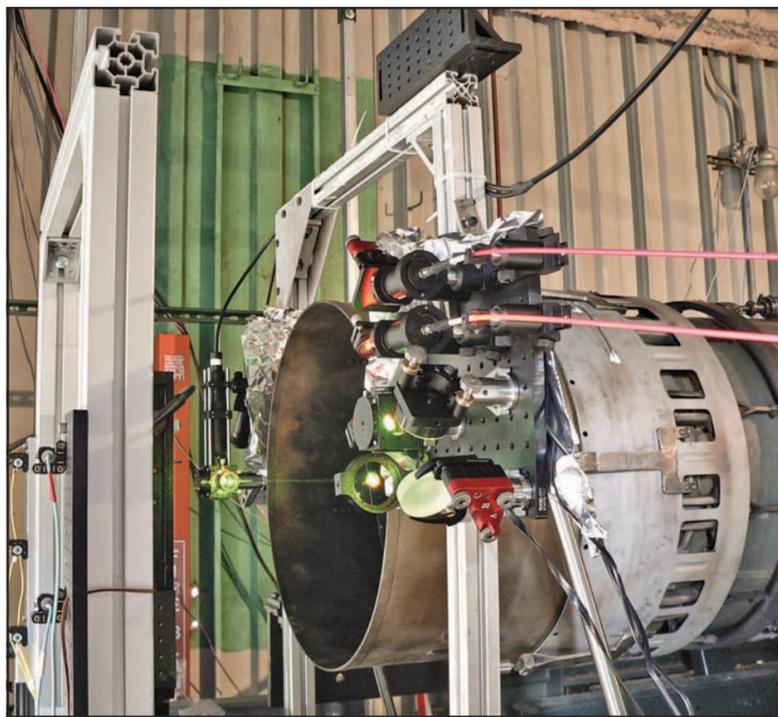
Andrew Alexander, an engineer with the ATA Non-Intrusive Instrumentation and Diagnostics Group, is working with the CARS system that was recently delivered to AEDC through the SBIR Program. He explained the CARS operational principal as relying on an optical property of gas molecules called the third-order nonlinear susceptibility, a property that wasn't known to exist until the advent of high power lasers in the 1960s.

Since then, Alexander explains, CARS systems have been used to measure temperatures and gas species concentrations in many research labs. There have been relatively few applications of the CARS measurement technique in aerospace testing and evaluation,

mainly because of the harsh testing environments. A potential game-changer is the use of fiber optics to transfer the CARS laser beams from the relative paradise of a temperature-controlled laser lab to a nearby test cell, with its harsh, extreme conditions.

The AEDC picosecond CARS system, delivered by Spectral Energies LLC, enables the use of fiber optics for laser beam transport because of the short duration (100 picoseconds, or 100 trillionths of a second) of its laser pulses. The unique feature of the picosecond CARS technique for fiber delivery is that it requires two orders of magnitude less energy per laser pulse compared to the conventional nanosecond CARS (with a pulse duration of 10 nanoseconds, or 10 billionths of a second) and this energy reduction should allow solid core fiber optics to carry the laser pulses without suffering optical damage.

AEDC also received a nanosecond-based CARS system developed by OptoKnowledge Systems, Inc. This system uses pulsed-laser propagation through hollow-core fibers. Use of the hollow-core fiber allows



Two hollow-core fibers (pink-colored at right) provide remote CARS measurements at the exhaust plane of the J85 engine at the University of Tennessee Space Institute. (Photo provided)

CARS to be remotely located from the test rig, thus reducing the impact of vibration from the high-speed engine.

According to Dr. Joseph Wehrmeyer, an engineer with the ATA Non-Intrusive Instrumentation and Diagnostics Group, the CARS system provides new diagnostic capabilities that enable AEDC to provide test customers with data that address the challenges associated with high-speed reacting and non-reacting flows in gas-turbine systems. These new capabilities are critical for the development and long-term health of the high-performance, military propulsion systems as well as commercial systems.

Alexander added that quantitative measurements are critical for validating numerical models of reacting

and non-equilibrium phenomena affecting modern gas-turbine and hypersonic propulsion systems. Such experimental and numerical tools are extremely valuable in the analysis of gas-turbine combustors, as well as applications with limited optical access such as internal combustion engines and stationary power generation systems.

Initial use of AEDC's picosecond CARS system is planned for the J85 test rig at the University of Tennessee Space Institute (UTSI) Propulsion Research Center.

Availability of advanced diagnostics is crucial to the AEDC mission and it is vital that these technologies continue to be explored and developed. With decreasing defense budgets, AEDC is leveraging external funding sources whenever possible

to meet these mission critical technology development needs.

The SBIR program is a funding source that serves a dual purpose explained Will Mallory, AEDC SBIR program manager. Mallory said one purpose is to develop innovative solutions and technologies for the warfighter and the other is to develop a commercial product that is beneficial to small business.

AEDC solicits topics internally once a year and works hard to identify capability gaps that could be filled with technologies developed under this program. Many current and future mission critical needs have been addressed through this program that would have not been addressed otherwise due to budget constraints.

Why I chose AEDC

“As an aerospace engineer, I can't think of a better place to work than at the largest wind tunnel in the world – AEDC's National Full-scale Aerodynamics Complex (NFAC). Being a Test Director in this facility gives me the opportunity to have a lead role in very exciting projects – testing everything from the next generation defense helicopters to interplanetary decelerators used to land on Mars. It's not considered work if you love what you do, and that's the type of atmosphere we have here at NFAC. I am constantly learning from all the engineers/scientists around me and I consider it a privilege to work by their side to come up with solutions to problems that are not found in the back of any textbook. We are constantly pushing the aerodynamic technological limits. There is no other facility like it in the world and it is a true honor to be a part of the AEDC team.”



Ary Glantz

Aerospace Engineer/Wind Tunnel Test Director, NFAC, Moffitt Field, Calif. – AEDC Jacobs, Hired 2013

Astronaut addresses audience at Engineers Week banquet

By Paul Kelly
AEDC Contributing Writer

Andy Allen, former astronaut and general manager for a Jacobs Technology contract at Cape Canaveral, Fla. was the keynote speaker at the Tullahoma area Engineers Week banquet on Feb. 25 at the Manchester/Coffee County Conference Center.

His talk followed presentations by the locally supported *FIRST*® LEGO® League team, Electrons, who titled their presentation, "Flood on Bugscuffle Road"; and presentations by Harry Clark on the MathCounts® competition, Jim Link on the Engineer for a Day program and Paul Kelly on the Student Design Competition. These programs represent

outreach by engineers to the young people in the Tullahoma/Manchester area.

Allen was selected for astronaut training in 1987 and became an astronaut in 1988. Prior to that, he was a test pilot for the Marine Corps. He went into space three times aboard the Space Shuttle, two of those times as the Shuttle pilot and once as the commander.

He first reminded the audience of where we are in relation to the Milky Way galaxy. He said that there are billions of stars in the galaxy, and possibly billions of planets. We, on planet Earth, are a small speck in the galaxy. A reporter asked him, after he returned to Earth from a Shuttle flight, if he felt important now that he

had been to space and he replied, "My overwhelming feeling is how insignificant I am."

Allen talked about how hard the astronauts train for the flights. He said that they "train, train, train for errors," and once in flight that training takes over. He described liftoff as the best ride of your life, "Better than any ride at Disneyworld." He stated that for the ground observers there is a lot of noise at liftoff, but for the astronauts, they don't hear it because they are riding ahead of the sound.

He called the Shuttle the greatest invention of the 20th century and said that the only way it was possible for him and the other astronauts to make the ride into space was due to all of the engineer-

ing and science that happened on the ground.

"It doesn't take a lot of intelligence to get strapped into a seat, but the real intelligence is all the people that work together to make the flight happen," Allen said. Because of this, "ordinary people get to do extraordinary things."

Showing photos of the space toilet, otherwise known as the Waste Containment System (WCS), he stated that the "simplest things on Earth require lots of engineering to make them work in space." He also stated that the area of biggest benefit from the space program is the medical field. He and his fellow astronauts referred to themselves as "lab rats" because they were hooked up to medi-

cal sensors much of the time that they were in space.

On one Shuttle flight, he called his family from the Shuttle after 10 days in space for a medical conference and spent most of the phone call refereeing an argument between his daughters over whose turn it was to talk. He said that talking with his children acted as a good reality check. It kept him grounded on the Earth, while flying 250 miles above.

At the conclusion of his talk, he opened the floor for questions. One middle school student asked him if he was afraid that his Shuttle would blow-up. His response was, "Yes, but I tried not to think about it too much." If it did blow-up,

then it would have been over quickly for him, and there wouldn't have been much he could do. He did say that "it was always a good thing to be a little bit afraid because it makes you pay attention."

Another member of the audience asked him to compare his experiences as a test pilot to those as an astronaut. He replied, "Being a test pilot is harder. The test pilot flies the plane and acts as an interpreter between the plane and the engineers. Test pilots can't make mistakes."

At the conclusion of the question and answer session, AEDC Commander Col. Raymond Toth presented Allen with a copy of "Beyond the Speed of Sound", a history of AEDC.

Social media: Unwanted eyes may be watching Airmen, families

By Airman 1st Class
Peter Reft
354th Fighter Wing Public Affairs

EILSON AIR FORCE BASE, Alaska (AFNS) – Social media outlets such as Facebook, Twitter and Flickr can provide an instantaneous and highly entertaining feedback stream of your daily activities to friends and family. The latest videos of dogs running with fireworks in their mouths, kittens tumbling in the snow or Internet memes of celebrity humiliations populate the news feeds of people around the world.

With so much content online and so many life events to share, it is easy to forget that unwanted eyes may be watching. Without realizing it, Airmen may unknowingly jeopardize the safety of themselves, their family, their friends or fellow military members.

The Operation Security program aims to reduce the vulnerability of Air Force missions by reducing the vulnerability of critical information.

In 1988, President Ronald Reagan signed National Security Decision Directive 298, which established the National Operations Security program. The opening paragraph in the document states, "Security programs and procedures already exist to protect classified matter. However, information generally available to the public as well as certain detectable activities reveals the existence of, and sometimes details about, classified or sensitive information or undertakings."

"Social networking media is a big one," said Tech. Sgt. Jason Cooper, the 354th Medical Group OPSEC program manager. "People don't realize that giving certain things out such as 'I have been out to an area of operation for the next six months' just gave the adversaries an indication of military activity."

"Then they can get the demographic information



Tech. Sgt. Christopher Mosley searches for operations security and personally identifiable information violations at Eielson Air Force Base, Alaska. During Operational Readiness Exercises, units are evaluated on OPSEC to ensure Airmen properly dispose critical information. Mosley is the 354th Fighter Wing Plans and Programs NCO in charge. (U.S. Air Force photo/Senior Airman Zachary Perras)

off your profile, figure out where you are and what base you're at. And now they know you're gearing up for deployment and can figure out who's deploying, when and where they're going, and who has what missions."

Another acute danger of Airmen posting to social networks involves smart phones automatically geotagging pictures with data that can reveal exact locations of critical assets.

"If a photo of a sensitive airframe, troop movement, building or equipment were to be published, it could give away key information on a possibly critical operation," said Tech. Sgt. Joseph Speirs, the 354th Logistics Readiness Squadron OPSEC manager. "Giving away GPS coordinates of military assets can also give potential targets for terrorists or other adversaries."

OPSEC applies to all activities that prepare, sustain or employ forces during all phases of operations.

There are five steps in

the OPSEC process – identifying critical information, analyzing threats, analyzing vulnerabilities, assessing risks and applying countermeasures.

The one step that every military member, regardless of special training, is capable of doing is identifying critical information.

"That's the foundation – finding out that critical information that adversaries can use to undermine your objectives," Cooper said. "Without that foundation, the program won't succeed."

OPSEC incidents are not

limited to on-duty work environments and military tactical operations.

"This is not just a program for while you're on the job or mission," Cooper said. "It's also one you can take home."

Airmen need to be cautious about certain visual indicators that may advertise their absence to potential criminals.

"If you have mail piled up and three or four newspapers on your porch, somebody who wants to break in to your home could be watching for that," Cooper said.

If Airmen realize how those indicators can affect their security, they can apply the proper countermeasures to prevent incidents.

"Taking simple steps such as calling the newspaper to tell them to stop delivering for the next few weeks or having a light switch timer that gives the impression somebody is home is a very good idea," Cooper said.

The OPSEC program encompasses the entirety of military operations that can be affected by military members, civilian workers, friends or family.

"Spreading the knowledge and reasoning behind the program to all involved with the military ensures everyone understands the importance of maintaining OPSEC with day to day operations," Speirs said.

Each unit employs an OPSEC manager to whom anybody may report suspected OPSEC incidents. For more information regarding OPSEC, refer to *Air Force Instruction 10-701, Operations Security (OPSEC)* on the Air Force e-Publishing website or contact your unit OPSEC manager.

AEDC DAY *from page 1*

and preserves AEDC and facilitates interaction and cooperation between the Complex and surrounding communities. The council's board of directors represents 13 southern middle Tennessee and Alabama counties.

AEDC received the

honor, according to the resolution, additionally because of its impact in the community.

While AEDC also plays a key role in America's space program, the test facilities at the world's largest ground test complex are estimated at a replacement value

exceeding \$11.8 billion.

The resolutions states, "AEDC, using one-of-a-kind facilities that do not exist anywhere else on the planet, has helped to develop civilian aviation aircraft and to make commercial aviation safer by testing jet engines under full flight conditions in

simulated altitude engine test cells and by testing improved airliner designs in the large 16-foot Transonic wind tunnel and full-scale tail sections in its unique California test facility.

"AEDC's impact on the local economy exceeded \$612 million with

an additional impact of approximately \$150 million from related sources, such as military, government civilian, and contractor retirees who live in Middle Tennessee because of AEDC."

The resolution also noted that more than 2,200 skilled person-

nel are employed at the Complex and AEDC is a good neighbor sponsoring Science, Technology, Engineering and Math (STEM) outreach programs in local schools as well as providing fire and emergency mutual aid response support in the community.

MENTORING *from page 1*

end in fiscal 2017. The Department of Defense's (DOD) Test Resource Management Center (TRMC), the second funding organization, provides funds for testing, hardware and instrumentation for the students to conduct research. TRMC's support began in fiscal 2012 and will extend to fiscal 2016.

The program, the first of its kind, is geared toward preparing future engineers in leading the hypersonic testing and evaluation field while conducting basic and applied research testing for the U.S. Air Force, DOD and hypersonic T&E communities.

A brief given by the University of Maryland and Tunnel 9 presented that current T&E personnel are nearing retirement and that there is an insufficient investment in new and young engineers.

Marren and co-founder Dr. Mark Lewis, the Science and Technology Policy Institute director, suggest that the pilot program will be instrumental to hypersonic research developments.

"My hope is that we are able to successfully navigate this pilot and mine lessons learned and strategies that actually are useful in workforce development," Marren said. "As our simple concept 'learn by doing' progresses, it is my hope that aspects of our program are applied to other areas of hypersonic T&E where we as a nation have a shortfall in our hypersonic testing workforce."

"That said, today, a national study team from OSTP (Office of Science and Technology Policy) and TRMC are looking really closely at our program to see if they can base a national plan on this pilot."

Currently there are six Tunnel 9 personnel mentoring nine graduate students and nine undergraduate students in the program from the University of Maryland. Students are involved in research activities related to unsteady shocks, turbulence characterization, simulation, modeling and validation. The students' work in diagnostics include temperature sensitive paint

(TSP) and focused and background-oriented Schlieren (BOS).

Marren explained that the students' knowledge and expertise have grown as well as the mentors.

"I have seen, in the last three years, great changes in how we accomplish our tasks," Marren said. "While it started out as a program that required a lot of high level guidance, each year mentors and students grow, the research matures, and this program is beginning to run itself."

"One day, while touring the student lab with a distinguished visitor, I noticed a student, a young Tunnel 9 engineer and a rotational Navy employee in the lab working on a device. When I inquired as to what it was, they informed me that the upcoming experiment required a certain UV light source that did not exist on the market. With a mechanical designer, they conceptualized a new product, designed it and built them. The fact that they were empowered to solve a problem

on their own and in the process came up with a device that never existed, all without my knowledge, was telling. That day I knew our program was doing something right."

Young Engineer Successes

One of the students Marren mentioned who is employed at Tunnel 9 as a result of the student program is Inna Kurits.

Kurits is a journeyman project engineer at Tunnel 9 and began her career as a Tunnel 9 undergraduate and graduate student in the program. She later accepted employment at Tunnel 9 and serves as a mentor in the HCoTE program. Kurits's work as a student at Tunnel 9 involved research with TSP.

Marren said, "She helped pioneer temperature sensitive paints while a student and today is leading the aerospace field in the application of parameter sensitive coatings." The coatings are a requirement now and used with every test program at Tunnel 9.

Kurits mentored, then

graduate student, Pratik Bhandari in the HCoTE program. Bhandari is the other student Marren referenced who is employed at the NAVAIR-SYSCOM.

Bhandari, an aerospace engineer, worked as a graduate student at Tunnel 9 developing ways to characterize and calibrate temperature sensitive coatings in the student lab. He recalled his experience in the program.

"I had the opportunity to work at AEDC Tunnel 9 for just over 4 years. I started work at the tunnel as an undergraduate intern after finishing up my sophomore year at the University of Maryland and continued working with the tunnel all the way up to the completion of my master's thesis in December 2012," Bhandari said. "When I came in as an undergrad, I had very little hands-on lab experience and I wasn't aware of practical considerations in terms of the design of experiments or dealing with uncertainty and error in my measurements, for instance. I was able to improve my

understanding of these topics, among others, while working on a project that Inna Kurits and Joe Norris were developing and introducing into the tunnel utilizing TSP to determine global heat transfer on wind tunnel models."

Bhandari said the mentors from Tunnel 9 and his University of Maryland faculty advisor Dr. Kenneth Yu, "were instrumental in developing my communication and presentation skills which, frankly, are sometimes overlooked in traditional engineering curricula. These skills have been crucial in my current work and I use them time and again on a daily basis."

"I would say to an aspiring engineering student that the HCoTE program will introduce them to the practical realities of problems that textbook examples simply cannot address and that, in my experience, the workforce skills that are developed along the way are invaluable learning opportunities that will help no matter what you end up doing later on in your career."

Services and Briefs

Arnold Golf Course 454-GOLF, 454-FOOD

Check us out on Facebook! Arnold AFB Services Golf Course

2014 AEDC Golf League starting in April, check out the Fitness Center section for more information.

Spring Into Golf special every day in April for \$26. Includes 18 hole green fee, 18 hole cart fee, hot dog, and fountain soda – a \$35 value!

Arnold Golf Course Customer Loyalty Program Purchase annual green fee for 2014 and receive: 10 percent discount on Pro Shop merchandise, 10 percent discount on Cart rental, 10 percent discount on Driving Range tokens, 10 percent discount on food/beverages at Mulligan's Grill. These discounts are good April 2014 through March 2015. Not valid in conjunction with the Members First Plus discounts. Maximum discount allowed is 10 percent. Sale items and alcohol are not authorized for these discounts.

The Commander's Season Opener will be a four-person scramble April 26 with an 8 a.m. shotgun start. Entry fee is \$25 per player and includes lunch. Green fee and cart fee are extra. Sign up by April 24.

Hot dogs available in the Pro Shop Monday through Friday. These hotdogs are placed on the roller in the Pro Shop for your convenience. The hotdogs are \$1 each.

Mulligan's Grill is open 10:30 a.m. to 1:30 p.m. Monday through Friday and 8 a.m. to 1 p.m., Saturday and Sunday. Call ahead orders for dine in or carry out, 454-FOOD (3663).

Arnold Lakeside Center 454-3350

Check us out on Facebook! Arnold AFB Services Arnold Lakeside Center and Arnold AFB Services Information, Tickets and Travel

April Movie Schedule. Family movie nights are Thursdays at the Arnold Lakeside Center with movie start time of 6:30 p.m. and dinner available from 5-8 p.m.

April 3 – “Tyler Perry’s A Madea Christmas,” rated PG-13 (1 hr. 40 min.) starring Tyler Perry, Chad Michael Murray and Tika Sumpter. Madea dispenses her unique form of holiday spirit on rural town when she’s coaxed into helping a friend pay her daughter a surprise visit in the country for Christmas.

April 10 – “Frozen,” rated PG (1 hr. 42 min.) starring Kristen Bell, Josh Gad, and Idina Menzel. Fearless optimist Anna teams up with Kristoff in an epic journey, encountering Everest-like conditions, and a hilarious snowman named Olaf in a race to find Anna’s sister Elsa, whose icy powers have trapped the kingdom in eternal winter.

April 17 – “Walking with Dinosaurs,” rated PG (1 hr. 27 min.) starring Charlie Rowe, Karl Urban, and Angourie Rice. Author P.L. See and feel what it was like when dinosaurs ruled the Earth, in a story where an underdog dino triumphs to become a hero for the ages.

April 24 – “The Nut Job,” rated PG (1 hr. 25 min.) starring Will Arnett, Brendan Fraser, and Liam Neeson. An incorrigibly self-serving exiled squirrel finds himself helping his former park brethren raid a nut store to survive, that is also the front for a human gang’s bank robbery.

Select Saturday movie nights are in The Landing with movie start time of 6:30 p.m. This movie night

Hours of operation

Arnold Lakeside Center: Catering/Management offices by appointment. Operations Clerk – Monday-Friday 7:30 a.m.-4 p.m. Dinner: full menu available Thursday 5-8 p.m., Friday and Saturday 5-9 p.m.; Main Bar – Thursday 5-8 p.m.; Friday 4-10 p.m.; and Saturday 5-9 p.m.; Social Hour – Friday 4-6 p.m.; Movie Night – every Thursday (family) and select Saturdays (age 18+, in The Landing bar) 6:30 p.m.

Information, Tickets & Travel (ITT): Office at Arnold Lakeside Center – Tuesday through Friday, 10 a.m. – 3 p.m.

Café 100: Monday through Friday, 6:30 a.m. – 1 p.m. Lunch starting at 10:30 a.m.

Barber Shop: by appointment – Monday, Tuesday, Thursday & Friday, 8 a.m. – 4 p.m.

GLC (office located at Arnold Lakeside Center): Monday through Friday, 7:30 a.m. – 4 p.m. May vary depending on bookings.

Outdoor Rec: Tuesday through Saturday, 10 a.m. – 5 p.m.

Fitness Center: Monday-Friday, 5 a.m.-7:30 p.m.; Saturday, 8 a.m.-1 p.m. Sunday Closed

Arnold Golf Course: Pro Shop & Driving Range, 8 a.m. – 4:30 p.m. Closed during inclement weather. Driving Range open 24 hours with pre-purchased key card. Mulligan’s Grill Monday through Friday, 10:30 a.m. – 1:30 p.m.; Saturday and Sunday, 8 a.m. – 1 p.m.

Recycling: Monday through Friday, 6 a.m. – 2:30 p.m.

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

Nonappropriated Funds Human Resources: Monday through Friday, 7:30 a.m. – 4 p.m.

is for adults only. Attendees must be 18+.

April 5 – “Homefront,” rated R (1 hr. 40 min.) starring Jason Statham, James Franco, and Winona Ryder. A former DEA agent moves his family to a quiet town, where he soon tangles with a local meth druglord.

April 19– “47 Ronin,” rated R (1 hr. 58 min.) starring Keanu Reeves, Hiroyuki Sanada, and Ko Shibasaki. A band of samurai set out to avenge the death and dishonor of their master at the hands of a ruthless shogun.

Arnold Lakeside Center is hosting a **Members Only Texas Hold ‘em Mini Tournament** every Thursday night that lasts through May 22. Play will begin at

6 p.m. in The Landing bar. There is no cost to enter but all players must be age 18 or older. Players will be divided evenly among tables in random draw placement each week. The number of tables will be determined by the number of participants each week. Tables will be responsible for the deal at each table. Prizes will be given to top winners each week. First place wins \$20 Services bucks, second place wins \$15 Services Bucks, and third place wins \$10 Services bucks. Dinner is available every Thursday from 5-8 p.m.

First Friday Jam will be held 6 p.m. on April 4. Come to play, listen, dance and enjoy. Join in with the

band to play an instrument or sing. Or take over and do your own performance. First Friday Jam is a very informal, stress-free, and kid friendly environment. If you would like to sing or play an instrument, please contact Jim “JJ” Jolliffe at jajolliffe@aol.com to get on the schedule, or simply show up with your instrument and/or singing voice. Room will be made for anyone wishing to perform. Dinner is available at the ALC from 5-9 p.m.

Brushes and Bottles will be held 6-8 p.m. at the GLC on April 10, and again 6-8 p.m. at the GLC on April 24. Bring your favorite beverage and get ready to get creative as an instruc-

tor will lead you through a canvas painting work of art step-by-step. By the end of the evening you will have your own masterpiece to take home. These painting parties are for all skill levels ages 21 and over with a cost of only \$25 per person. All paint, brushes, aprons, easels, canvas and other necessary materials will be provided. All you have to bring is your beverage of choice. Light snacks will be provided and other beverages will be available for purchase. Deadline to sign up for this event is April 4 and April 18. Class size is a maximum of 15. Call 454-3350 to sign up or for more information.

See BRIEFS, page 10

BRIEFS from page 9

The Community Center at Arnold Lakeside Center will host a **Daddy Daug-ter Dance Luau** on April 12 from 5-8 p.m. All ages are invited to attend with their daddy. If daddy is unavailable, another Kane may come in his place. Dress will be in Hawaiian theme. The menu will follow traditional Hawaiian fare with Hawaiian shredded pork sliders, teriyaki beef skewers, Polynesian rice, ginger roasted potatoes, fresh tropical fruit skewers and chocolate liliko'i parfaits. A frozen tropical smoothie will also be served in a commemorative glass. Dinner will be served from 5-6:30 p.m. and the tiki smoothie bar will be open from 6:30 to 8 p.m. Upon arrival, have your picture taken and a commemorative photo will be ready for you to take home at the end of the event. ADJ will provide music from 5-8 p.m. and there will be a hula hoop demonstration and costume contest. Prizes will be awarded for first, second, and third place. Cost for evening is \$16 per couple for members and \$17 per couple for nonmembers. Additional hula girls in the same family will be \$5 extra for members and \$6 extra for nonmembers. To make reservations, call 454-3350 by April 4.

Arnold Lakeside Center will host a free **Easter Egg-stravaganza** event on April 19 from 1-3 p.m. This event is open to children ages 2-12. Attendees will take part in an egg toss, egg relay and egg roll, and finish the event with a traditional Easter egg hunt on the ALC lawn at 2 p.m. Prizes will be awarded in three age groups, 2-5, 6-8, and 9-12, and a special appearance will be made by the Easter bunny. Call 454-3350 for more information or to reserve your spot.

Last Friday Trivia moved to April 18 for this month and starts at 6:30 p.m. with questions in random categories. Teams may 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. There are eight rounds with three questions per round. For rounds 1-4, teams have two, four and six points to wager per round. For rounds 5-8 teams will have four, eight and twelve points to wager per round. Only one point value may be used per question. For example, if you wager four points on the first question then you must choose either two or six points for the next question. Whichever value is left must be used for the final question in that round. After the eighth round, teams may wager up to their total points earned for the final question. Prizes are awarded for top finishers.

Air Force Clubs Scholarship Program is pleased to announce the 2014 Clubs Scholarship Program, which is now in its 16th year! Twenty-five \$1,000 scholarships will be awarded through this program. The program is only open to current Air Force Club Card members in good standing and their eligible family members. Applicants must submit their essays online for consideration by April 14. Only one essay per household may be submitted. Entrant must be a 2014 graduating high school senior or eligible family member currently attending an accredited college or university, working towards an

Associate or Bachelor's degree. Applicants must submit an online entry form, ensuring all information is clear and legible. The essay must be 500 words or less, and should also be submitted online. Essays will be judged using the following criteria: grammar, spelling, and punctuation. Clarity and relevance of essay content information relative to topic will also be taken into account. All essay entries will be graded and scored by a panel of judges, with their selection and scores being final. Essay criteria: Due to both budgetary constraints and a larger portion of military families living outside of military installations, many Morale, Welfare and Recreation (MWR) programs and facility closures continue to affect our Airmen and their families. As a result of the actions, explain the "who, what, when, where and why" of how you would add new life into an MWR program to increase and continue to affect our Airmen and their families. For more information or to submit your scholarship package, please visit <http://www.myairforcelife.com/Clubs>. Scholarship winners will be announced May 15.

Making plans for Spring Break? Ask about Universal Orlando's "3rd Day Free" ticket special offer brought to you by ITT (Information, Tickets and Travel) at Arnold Lakeside Center. The 2-Day Base with 3rd Day Free Ticket entitles one guest admission to one theme park per day. Ticket is valid for any three calendar days during a 14 consecutive calendar day period which includes the first day any portion of the ticket is used. This ticket also includes 14 consecutive calendar days of admission to the paid entertainment venues of Universal City Walk which commences and includes the first day any portion of the ticket is used. First use of this ticket must be on or before May 9 to receive full benefit of the ticket entitlements. All ticket usage must be completed on or before May 22 when the ticket will expire in full. For complete details and to order tickets, call ITT at 454-4003.

Barber Shop is located in the A&E Building in room A107 and is open Monday, Tuesday, Thursday and Friday from 8 a.m. to 4 p.m. Haircuts are \$8 and are by appointment. Call 454-6987.

In honor of **Administrative Professionals' Day**, April 23, Café 100 will be offering a "buy one, get one half off" special, available for breakfast or lunch. This special is for all customers, not only administrative.

April special in Café 100: Try our BLT combo special. A BLT sandwich, fries or tots and drink for \$4.50.

Daily \$6 specials in Café 100: Every Monday is Lasagna served with salad, garlic bread, and drink. Every Wednesday is Pulled Pork BBQ sandwich served with slaw, choice of chips or potato salad and drink.

Cafe 100
454-5885

Café 100 Soup of the Day. Warm up with one of our daily soup selections. Monday: Chicken Noodle Tuesday: Loaded Baked Potato

Wednesday: Broccoli Cheddar
Thursday: Vegetable Barley Beef
Friday: Tomato

Fitness Center
454-6440

Check us out on Facebook!
Arnold AFB Services Fitness Center

Arnold Fitness Center challenges you to participate in **The Group Class Big 3 Challenge** anytime during the month of April. Participate in at least one of all three types of classes offered – Interval Training, Yoga, and Cycling – and earn an incentive prize. Be sure to use the sign in sheet for each class or check in with Joe Watters to get credit for taking the class. Group Classes are for eligible users only. See below for the complete class schedule.

The **2014 AEDC Golf League** will begin play at Arnold Golf Course April 7. The league is limited to the first 20 four-person teams to sign-up. The format is four-person team match play with a maximum individual nine-hole handicap of 13 established. Ladies will play from the red tees, men under the age of 60 will play from the blue tees, and men age 60 and over may choose to play from the gray tees. Each team will play either Monday or Tuesday at 4:30 p.m. for a maximum of 19 weeks dependent upon the number of teams entered. There will be no league play on the weeks of Memorial Day and July 4th. If play continues through September, there will be no league play on Labor Day. Daily green fees will apply and vary depending on use category (i.e. military, DOD, contractor, other). To enter a team, call one of the contacts below. Provide your team name, names of members with phone numbers, and identify a team captain. All entries must be submitted by March 31. Contact Phillis Brown, 454-GOLF, or Ron Stephenson, 454-6440, to enter your team. This is a Fitness Center program ran through and held at Arnold Golf Course.

Spring 3.5 mile Fun Run April 23 at 11 a.m. on the Fitness Center trail. Complete two laps around the trail, and mark this Fun Run off of your to do list. First 25 people to sign-up will get a free t-shirt. Call 454-6440 to reserve your spot.

Group Class Schedule: (for eligible users only)
Cycling: Tuesday and Thursday, 11 a.m.-12 p.m.
Yoga: Monday and Wednesday, 11 a.m.-12 p.m.
Interval/Circuit Training: Monday, Wednesday and Friday, 6-7 a.m. Tuesday and Thursday, 3:30-4:30 p.m.

If you want more options for classes, then try the **Fitness on Request (FOR) kiosk**. The kiosk provides virtual instructors leading exercises in areas such as Vibe Dance, Fusion Mind Body, Fit for Duty, Rev Cycling, TKO Kickboxing, Stomp Step and Kinetics. FOR can accommodate individuals or groups and is available any time during regular hours. Ask about kiosk orientation and scheduling.

Check us out on Facebook!
Arnold AFB Services Outdoor Recreation

Winter Rates now

available at FamCamp. RV sites at FamCamp will be \$12 per night, and \$300 per month, and tent sites will be \$4 per night. These rates will continue through May 1.

Teambuilding Facilitation available through Outdoor Rec. Book your team building event at least two weeks in advance and customize your activities to include leadership, communication, trust, conflict resolution and more. Our kit has 289 activities and can serve up to 120 participants. Large group challenges can accommodate up to 60 people. This equipment must be facilitated by an Outdoor Rec staff member and is not available for rent for private use. Department of Defense organizations may utilize the program for free. All others have the option of half day (4 hours) for \$50 or full day (8 hours) for \$100. Call to find out more information or book your team building event.

Outdoor Rec will hold an **Outdoor Expo** at building 100 (loading dock side) from 10 a.m. to 2 p.m., May 1. All base employees are encouraged to come by and see some of the items available for rent from Outdoor Rec. Stop by to see what is new for the summer and learn about many of the customer favorites available. Some of the new items include stand-up paddle boards and speed ball course. Other items include kayaks, canoes, windsurfer, pontoon, team building kit, inflatables, grills, canopies, fishing poles and more. Brochures with pricing and information on these items as well as camping at FamCamp, Crockett Cove and Dogwood Ridge will also be available. Door prizes will be given throughout the event so be sure to register. You do not have to be present to win, but all entries must be filled out completely to be eligible. Prizes may be picked up at a later date from

Outdoor Rec. Hot dogs, chips and beverage will be available free of charge so stop by during lunch and check us out.

Outdoor Rec (ODR)
454-6084

Outdoor Rec inflatables! There is an assortment of inflatables for almost everyone's needs. We have a huge backyard obstacle challenge measuring 40'L x 10'W x 13'H, and a double lane jump slide for only \$150 per day. We also have a giant basketball hoop for \$30 per day and a Rocket Bounce House for \$75 per day. If you need a water slide then our 18' Double Drop Wet/Dry slide will be great for any event and is only \$150 per day. Please contact Outdoor Recreation at 454-6084 to make your reservation today!

Did you know ODR now has disc golf? Disc golf is a flying disc game in which individual players throw a flying disc at a target. Much like golf, the object of the game is to traverse a course from beginning to end in the fewest number of throws of the disc. The ODR course targets are portable so course location may change. Initial plans are to begin in the softball outfield behind the ODR building. Players may play for free with their own discs or rent discs from ODR for \$1 each. There are different sizes and weights of discs much like different clubs in golf to better serve the needs of the target desired. For more information on disc golf call ODR at 454-6084.

Reservation Policy: FamCamp, Crockett Cove and Dogwood Ridge reservations may be made 45 days in advance for active duty and reserve military, 40 days for retired military, and 30 days for all other qualified personnel. Boat reservations may be made 15 days in ad-

vance for active duty and 10 days for other eligible individuals. All reservations are made through the Outdoor Recreation in person or calling 454-6084.

Wingo Inn
454-3051

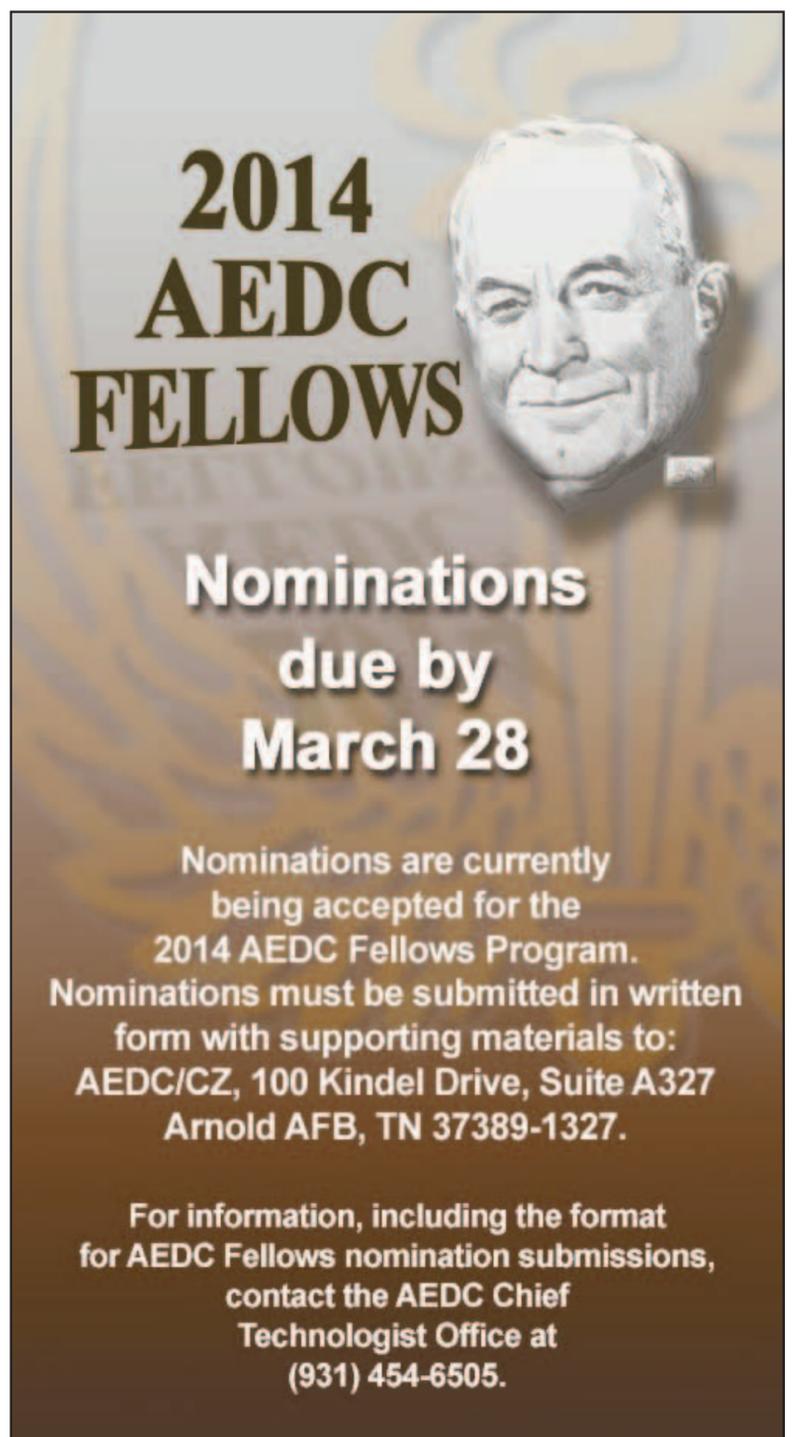
Check us out on Facebook!
Arnold AFB Services Wingo Inn

If you have **family and friends visiting** and need extra space then call Wingo Inn. Reservations for Wingo Inn can be made 120 days in advance and room rates start at \$56 per night. Call 454-3051 for reservations and more information.

Gossick Leadership Center
454-4003

Check us out on Facebook!
Arnold AFB Services Gossick Leadership Center

The **Gossick Leadership Center (GLC)** may be used for events such as meetings, conferences, luncheons, dinners, etc. and is booked through the Services Conference Center Manager (CCM) up to one year in advance. Requests must be made in writing by email to arnold.glc@arnold.af.mil. All event coordinators are required to sign an agreement. Official unit functions are authorized at no charge and are defined as bona fide official meetings or training held as part of the normal duty day. Unofficial and private functions may be held for authorized users at a fee. Community members may host events with the approval of the Services Director for a fee. Outside food and beverages are not allowed. First consideration must be given to Arnold Lakeside Center. In the event they cannot accommodate, an outside source may be utilized with CCM approval. For more information contact the CCM at 454-4003.



2014 AEDC FELLOWS

Nominations due by March 28

Nominations are currently being accepted for the 2014 AEDC Fellows Program. Nominations must be submitted in written form with supporting materials to:
AEDC/CZ, 100 Kindel Drive, Suite A327 Arnold AFB, TN 37389-1327.

For information, including the format for AEDC Fellows nomination submissions, contact the AEDC Chief Technologist Office at (931) 454-6505.

VKF Modernization Program Team celebrates Zero Accident Award



(Photo by Jacqueline Cowan)

Earlier this month, Aerospace Testing Alliance (ATA) team members of the AEDC von Kármán Gas Dynamics Facility (VKF) Modernization Program celebrated with barbecue and all the trimmings. Team members were honored with a series of luncheons at the Carroll Engineering Analysis Facility, Model Shop and VKF in recognition of their receipt of the

“Jacobs Zero Accident Award.” The award is presented annually by Jacobs, ATA’s managing partner, to projects whose teams have worked 250,000 consecutive hours without an injury of motor ve-

hicle incident. Catherine Plunkett, Director, ATA Safety, Health and Environmental congratulated these winners for demonstrating real leadership towards world-class safety and validating the level of

safety excellence that all of us can strive to achieve. Projects included in this achievement were the VKF Modernization Test Investment Planning and Programming (TIPP), Upgrade V-Plant Controls,

Tunnels A,B and C (ABC) Modernization TIPP, ABC Data Acquisition System, ABC Operations Center, ABC Shadowgraph/Schlieren, and Tunnel A Nozzle and Diffuser Actuators and Controls.

GPS IIF-5 successfully launched from Cape Canaveral

LOS ANGELES AIR FORCE BASE, Calif. (AFNS) – The U. S. Air Force officials successfully launched the fifth Global Positioning System (GPS) IIF satellite carried aboard a United Launch Alliance Delta IV launch vehicle at 8:59 p.m. EST from Cape Canaveral Air Force Station, Fla., Feb. 20.

The Boeing-built GPS IIF satellite will join the GPS constellation providing world class space-based positioning, navigation and timing capabilities to support users around the globe. The new capabilities of the IIF satellites will provide greater navigational accuracy through improvements in atomic clock technology, a more robust signal for commercial aviation and safety-of-life applications, known as the new third civil signal (L5), a second civil signal (L2C) available for the dual frequency GPS receivers and a 12-year design life providing long-term service. These upgrades improve anti-jam capabilities for the warfighter and improve security for military

and civil users around the world.

“I am pleased with the outcome of today’s launch,” said Col. Bill Cooley, the director of the Space and Missile Systems Center’s GPS directorate. “The new capabilities provided by the IIF satellites will improve operations, sustainment and overall GPS service for the warfighter, international, commercial and civil communities.”

“The modernized capabilities that are coming on board with the successful launch of GPS IIF-5 will support the worldwide GPS community for years to come,” he continued. “I would like to recognize the outstanding commitment and the superb dedication to mission success from the 45th and 50th Space Wings, our industry partners Boeing and United Launch Alliance, and the GPS IIF and Delta IV program teams at the Space and Missile Systems Center.”

GPS provides accurate real time position, navigation and timing services

and plays a major role in information resources supporting a variety of civil, scientific and commercial functions on land, sea and air. Operated by the Air Force Space Command, the GPS constellation provides precise services worldwide

24 hours a day, and the Air force is committed to providing improved capabilities to ensure users around the globe receive the maximum benefits provided by GPS.

The AFSC’s Space and Missile Systems Center,

located at Los Angeles Air Force Base, Calif., is the Air Force’s center of acquisition excellence for acquiring and developing military space systems. Its portfolio includes GPS, military satellite communications, defense meteorological satellites, space launch and range systems, satellite control networks, space based infrared systems and space situational awareness capabilities.

(Courtesy of Air Force Space Command Public Affairs)



A United Launch Alliance Delta IV rocket successfully launched the Global Positioning System IIF-5 satellite for the U.S. Air Force Feb. 20 at 8:59 p.m. from Space Launch Complex-37 at Cape Canaveral Air Force Station, Fla. GPS IIF-5 is the fifth in a series of next generation GPS satellites and will join a worldwide timing and navigation system utilizing 24 satellites in six different planes, with a minimum of four satellites per plane positioned in orbit approximately 11,000 miles above the Earth’s surface. (United Launch Alliance photo/Ben Cooper)

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March 25	VKF
	11:30 a.m. - 4 p.m.
March 26	A&E
	11 a.m. - 4 p.m.
March 27	EAF
	11 a.m. - 4 p.m.
March 28	Main Aud.
	12 p.m. - 5 p.m.

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