AEDC test team reacts to first orbital flight test of X-37

By Philip Lorenc III
Technical Writer

The U.S. Air Force-Rocketdyne X-37 orbital test vehicle (OTV) was launched into space atop an Atlas V booster from Cape Canaveral, Fla., April 22. The launch caught the attention of engineers, technicians and craftsmen at AEDC who supported the X-37 program over the past few years.

“It’s great to see the data we provided from Tunnel 9 on the X-37 directly supporting the hypersonic flight test,” said Joe Coblish, projects group team leader at AEDC’s Hypersonic Vehicles Wind Tunnel 9. “It’s an exciting time in the field of hypersonics.

“In the flight regime of hypersonics, we test cutting-edge experimental configurations that do not make it to flight,” he continued. “Flying at hypersonic speeds can present extreme design challenges to system developers and developing cost-effective solutions in today’s economic environment can be difficult on shrinking budgets.”

Tunnel 9 supported the X-37 test while it was a NASA program, first in 1999 and again in 2003. “Both tests looked at high altitudes, up to 49 degrees angle of attack – reentry aerodynamics,” Coblish said. “[This] required the Mach 14 capability at Tunnel 9, being it is the highest Mach number wind tunnel in the U.S. capable of collecting integrated force and moment data.”

John Hopf, a senior project engineer at AEDC, is proud of the role he and his coworkers had in building the X-37 in the van Kármán Gas Dynamics Facility Tunnels A, B and C in 2001 and 2004.

“I consider the X-37 jet interaction test my favorite test during my 24-year career at AEDC,” Hopf said. “It was a valuable learning opportunity for me by offering numerous technical challenges, he said, “I relished heavily on the expertise of a very experienced and dedicated core test team at VKF to meet and exceed the customer’s expectations by achieving all of test objectives with a minimal number of delays or problems.”

According to Air Force officials, the X-37 is similar to the space shuttle except it is about a third the size and unmanned. The OTV, at 27.5 feet long with a 13-foot wingspan, will operate in low Earth orbit like the space shuttle and will “take a suite of two-generation technologies and push on this mechanism.”

The X-37 will provide flexible space test platform to conduct various experiments and allow satellite sensors, subsystems, components and associated technologies to be efficiently tested and transported from the space environment where it will also function. A number of new technologies, will also be tested on the X-37 itself.

“If these technologies on the prove to be as good as we estimate, it will make us access to space more responsive; perhaps cheaper, and push us to...

See X-37, page 3

Earth Day Celebrated

AEDC celebrated the 40th anniversary of Earth Day April 22. The fifth grade student teams at the K-6 School entertained the attention of the Earth Day Fair. Christina Norman, technical specialist in AEDC Environmental Quality, coordinated the Earth Day Fair and related activities. For more photos, see page 7. (Photo by Rick Goodfriend)

New expansion joint installed

Construction crews from Chicago Bridge & Iron Constructors Inc. install a 96-inch expansion joint in the new stainless steel duct connecting the new Desiccant Dryer Unit Facility and the ASTF high stage compressors.

The $28.2M Turbine Engine Dry Air Capability (TEDAC) project is 75 percent complete with completion planned at Mach 14 in Tunnel 9.

Project engineer Joe Norris pushes the finishing touches on the X-37 thermal protection shield just prior to testing at Mach 14 in Tunnel 9.

The X-37B Orbital Test Vehicle will encapsulate the call of the Evolved Expendable Launch Vehicle April 5, at the Astrotech facility in Titusville, Fla. Half of the Atlas V five-meter fairing is visible in the background. (Courtesy photo)
A Second “Call to Arms”

By Col. Michael Panarisi
AEDC Commander

If you’re ever going to sink your teeth into one of my messages, please make it this one.

We’re about to disturb you with, and ask you, an issue.

Across the USAF, our Team AEDC’s are suffering. We don’t fully understand why, but the outcome is concerning.

We are losing members at an unprecedented rate, both military and DoD civilians. While we’re trying to resolve the trend throughout the year, we aren’t succeeding, so we’re entrenching the entire government, working to help figure this out. We can’t wait the exact date, but in the next couple weeks, we’ll "Wind Down" and collectively pursue answers.

Concerningly, someone is up on us, and we know that statistically, we’re facing an immediate issue, and our mission is to find ways to prevent any and all consequences.

Across the USAF, rate, and all categories, as are critical to our mission, I have the unfortunate news of reviewing a.[..]wear a smart looking and daily "Significant Events" mind, and it blows my mind.

Just about every day now I read about the loss of a fellow AEDC member in a preventable accident. We’re learning about it almost daily, a readiness push, jeopardizing our existence.

We are blessed here. Our work force, though stressed, remains amazing in its morale, devoted and devoted to both our mission and each other.

I see people brave, at what they’ve been through, and even more shocking to see them do what we can on the basis of extraordinary circumstances.

But I also deliberates focused efforts to correct attitudes and environments to limit these perceptions. We’re not perfect, but frankly, I wouldn’t want to be anything else.

I’ve always been excruciatingly proud of what I braved as a "brilliant work force." He honest, frank, and do not lose the discipline thinking I should have run as long as I can. And in the end, do you just don’t think your voice was heard, get to me.

We’re on a mission to change the culture. We’re seeing results overnight. But we will find a way to know we can.

We prevent high-risk behavior while operating missions. Here’s how we identify, reach out to and intervene to prevent suicide.

Our team is holistic, coordinated and devoted to both our mission and each other. The center’s vision: For advertising information, please contact your local AEDC or Aerospace Testing Alliance. Deadlines for copy availability, announcements of exhibits or open community events, as well as a futuristic setting and he

The content of this publication will not necessarily reflect the views of the Air Force Materiel Command (AEDC) or Aerospace Testing Alliance (ATA). 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 after themselves. AEDC’s Air Force regulations specifically prohibit.

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Covington to speak at UTSA graduate reception

By Madgie Gibson

UTSA will host a reception for its gradu- ate students, the main event of the Academic Building from 3-4:30 p.m. May 12.

Speakers for this event will include Dr. Mark A. Ewell, director of UTSA and Bert Covington, executive director of AEDC.

Covington received a Bachelor of Science degree in aerospace engineering from Auburn University in 1985 and a Master of Science degree in engineering management from University of Maryland in 1991. He began his civil service career as an aerospace structural engineer at Warner Robbins Air Logistics Center, Robins AFB, Ga. Covington has served in a variety of positions in Air Force Materiel Command and the Air Force Safety Center, including chief engineer and engineering director for the 45th Space Wing and director of the 45th Launch Support Port- ricn rocket. He has also been on the faculty at the Air Force Safety Center at Kirtland Air Force Base, N.M.

Additionally, he has served as the Deputy Director for the 7th Aeronautical Systems Group. Prior to his current posi- tion, Covington served as the technical director for the 7th Maintenance Group, 7th Space Wing, Tinker AFB, Okla., and was responsible for the technical leadership at Oklahoma City-Air Logistics Center.

Dr. Robert N. “Bud” Moore came to the University of Tennessee in 1981 when he joined the Knoxville faculty as assistant professor of microbiology. During his years at Knoxville, he was named head of the department of micro- biology and associate dean for research and graduate programs for the college of Veterinary Medicine.

Dr. Moore led the research and graduate programs at the college and also directed the Center of Excellence in Livestock Diseases. While at the University of Tennessee, he directed the Comparative and Experi- mental Medicine (CEM) graduate program, a joint program of the college and the UT Health Science Center’s Graduate School of Medicine.

Dr. Moore joined UT Knoxville in 2010. He was staff fellow at the National In- stitutes of Health (NIH), one of the world’s foremost research centers before coming to the University of Tennessee. He is also an associate editor of the “Journal of Im- munology” and editor of “Infection and Immunity.”

Dr. Moore received Bachelor of Science and Master degrees from Clem- son University and his doctorate from the University of Texas at Austin.

The public is invited and persons wishing to attend this event should make arrangements with Charles Hana, registrar, at 951-3893.

Ramesh Gulati, AEDC best practices result in reliability book

By Shawn Jacobs

Aerospace Testing Alliance

Ramesh Gulati, asset management and reliability planning manager at AEDC, has been called an “un- usual” for AEDC.

That’s because everywhere he goes — both inside and outside the company — he attracts the kind of attention and interest that grows almost exponentially as people learn about him and his efforts to bring best practices to AEDC. Ramesh is a native of India, but his interests in asset man- agement and reliability planning are so valuable that he is considered an asset to AEDC.

In the past, he might have been called a “paperAmericacan,” because he is a member of the American Institute of Aeronautics and Astro- nomics (AIAA) and has hosted a lunchtime meeting at the Arnold Air Laboratory. Recently, the president, Dr. Paul Bevilacqua of Lockheed Martin, will present “In- tegration of Space Flight and the launch vehicle program is introductory. There is no better way learn about spaceflight. Each student will be assigned to a launch system. The course is offered September 2010 through June 2011. The course is open to engineering and science majors.

JSF engineer to speak at AIAA meeting Wednesday

The Tennessee Section of the American Institute of Aeronautics and Astro- nomics (AIAA) will host a lunchtime meeting at the Arnold Laboratory on Wednesday.

Speaker, Dr. Paul Bevilacqua of Lockheed Martin, will present “In- tegration of Space Flight and the launch vehicle program is introductory. There is no better way learn about spaceflight. Each student will be assigned to a launch system. The course is offered September 2010 through June 2011. The course is open to engineering and science majors.

Best Paper Award

Fred Ducenzo (left), Rockwell Automation and current Machinery Failure Prevention Technology (MFPT) chairman, presents Dr. Joseph Shelley (right) a plaque for Best Paper at the 2010 MFPT Conference in Huntsville, Ala. The paper, co-authored by Dr. Joseph Shelley and Cary Duggin, is titled “A survey of rotating machinery condition indicators.” The paper was also part of a joint presentation of another group of authors who were recognized by the AIAA Ground Test Technical Committee with a Best Technical paper award. The technical paper titled “Testing of a model based predictive control system in a transonic aerodynamic test facility.” The paper was submitted at the 2010 Aerospace Sciences meetings. The authors of the paper are AIAA employees Mr. Anthony H. Short, Steven Salita, Mike Thelen and Dr. Shelley. (Photo Provided)

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In Person: Tom Irvine

Tom Irvine, the deputy associate administrator for the aeronautics Research Mission Directorate at NASA headquarters, speaks about the future of the space program before the Aeronautics Test Facilities Users Meeting at AEDC began. (Photo by Andrea Stephen)
Rescue center members assist with saving lives in flood

By Capt. Jared Scott

A levee breach on a nearby river caused flooding of up to five feet in some areas of the housing facilities of Naval Support Activity Mid-South.

"The on-scene Navy commander controlled search and rescue operations of the incident, but requested additional air assets to assist in the search," said Lt. Col. Charles Tomko, the AFRCC commander.

After the initial call from Tennessee Emergency Management Agency officials, AFRCC members contacted Mississippi Civil Air Patrol officials, the official auxiliary to the Air Force, to conduct air patrols to assist in search efforts of the housing area of the Naval Support Activity.

"Along with Navy and Coast Guard assets that were already on-site, in the search, the AFRCC provided CAP aircraft to aid ground and water search crews in finding stranded people," Colonel Tomko said.

"We received the call around 4 p.m. (May 2) and launched as soon as the weather allowed us to search for people stranded in these areas," said Lt. Col. Carbon Sammet, the CAP incident commander. "We flew from approximately 6 p.m. until we ran out of daylight. We flew an additional set on the (May 2) to make sure we didn’t miss anyone."

With the combined efforts of Navy, Coast Guard, local, CAP and AFRCC officials, 330 Navy personnel were rescued from the flooded Naval Support Activity housing facilities.

As the United States’ national search and rescue mission coordinator, AFRCC members are responsible for coordinating federal search and rescue activities in the 48 contiguous United States.

The rescue coordination center directly ties into both the Federal Aviation Administration’s alerting system and the U.S. Mission Control Center.

In addition to Search and Rescue Satellite Aided Tracking information, the AFRCC computer system contains resource facilities that list federal and state organizations which can conduct or assist in search and rescue efforts throughout North America.

The Civil Air Patrol is a nonprofit organization with 39,000 members nationwide. CAP, in its auxiliary role, performs 90 percent of continental U.S. inland search and rescue missions, and was credited with saving 72 lives in fiscal year 2009.

CAP volunteers also perform homeland security, disaster relief and counterdrug missions at the request of federal, state and local governments.

CAP members performed missions for 68 years.

"This levee breach in Tennessee is a prime example of how things can change in an instant," said Maj. Gen. Gary C. Dean, the Air Force Northern Commander. "In this case, the immediate response of these trained professionals ensured that all Navy personnel and dependents were accounted for. This is a great testament to the job the men and women involved in this joint search and rescue mission."
AEDC Celebrates Earth Day

AEDC celebrated Earth Day April 22 with an Earth Day Fair in front of the Main Auditorium.

AEDC employees visited with various vendors, registered for door prizes and consumed popcorn and soft drinks all in commemoration of the 40th anniversary of Earth Day.

Vendors from the surrounding area provided useful information about recycling, biodegradable products, ornithology and other areas. The fifth grade energy team from Robert E. Lee Elementary School in Tullahoma performed energy skits. The team also had a booth and collected energy questionnaires as part of their project.

Approximately 60 fifth grade students from East Lincoln Elementary School in Tullahoma participated in an environmental awareness project by decorating canvas grocery bags with environmental messages. The bags were judged and returned to the students for their parents’ use in place of plastic bags.

Photos by Rick Goodfriend
A Reliable Plant is a Safe Plant. A safe plant is a reliable plant. As the safety goes up, the injury rates goes down, the reliability goes up, or vice versa.

HM: By the very nature of the concept, some of this book gets fairly technical, but you’ve made it as readable as you could.

Gulati: Yes. I tried not to use technical jargon. I tried to make it simple so anybody can understand it.

HM: You’ve got a chapter about work force management. Why is that important?

Gulati: When we were developing the CMRP (Certified Maintenance and Reliability Professional) exam, we found that we had to deal with people. Right now, our work force is varied and there are a lot of different generations and different ethnic backgrounds. We have to work with them, so I thought it was appropriate to talk about these things.

HM: You have another book that has just been published, don’t you?

Gulati: This book is called “The Professional’s Guide to Maintenance and Reliability Terminology.” The concept of this book took four to six years. My coauthors, Jerry Kahn, Robert Baldwin and I, we were working on the best practices committee of SMRP, and we were struggling to find the standard definitions of our maintenance and reliability terms. That’s where the concept started. So we documented about 3,000 terms in it. It has all the definitions, abbreviations and acronyms we know a lot, it will be a good reference for anybody coming into the field.

“Maintenance and Reliability Best Practices,” published by Industrial Press, is available at major bookstores, including Amazon, Barnes and Noble and MRO-Zone.

“The Professional’s Guide to Maintenance and Reliability Terminology” is published by Reliability Web Inc. and is available through MRO-Zone.

STAt is an effort that we identified as a capability gap in a system—planning meeting in conjunction with the other military services.

We knew we needed a STAT and AESA has some natural capabilities in place, like the Characterization of Combined Orbital Surface Effect [COSSE] capability that was set up with the subject matter expert already here,” he explained.

AEDC’s work on the Total Airborne Plume Simulator (TAPS) is also being funded by Hinton’s organization.

For our aircraft systems certainly in theater where you are dealing in a hostile environment on a day-to-day basis, one of the biggest threats to our aircraft is shoulder-fired missiles,” he said. “We have to put countermeasures in place and it has been a priority of the department to put those missile warning systems in place so that we can protect our fixed-wing aircraft and helicopters. Testing those systems to make sure they function as they should is very important.

He continued, “The TAPS capability is an ability for us to make that missile warning system believe that a missile is actually being fired at it. The barrier portion is the most critical part of that system because it gives the correct signature and it gives it that right spatial requirement to allow it to believe that you’re actually closing in on it. If we didn’t have that capability, we wouldn’t be able to build and test those kinds of systems.

Hinton began his career serving in the United States Marine Corps Reserve from 1983-1991, joining the DOD civilian work force in 1989 as a test engineer responsible for tests and evaluations Test and Evaluation with the 46th Test-Wing Eglin AFB, Fla. In 1996, Hinton joined the AT&L team, then transitioning to the Office of the Director, Operational Test and Evaluation in 2001 and finally joining the TRMC in 2005. He holds a bachelor of science in industrial engineering from the University of Alabama and masters of public administration and an acquisition core level III certification in Test and Evaluation from the Defense Acquisition University.

Rescue from page 5

“Now we had our team we came across a gentleman who had an ear space,” Airmen Simonson said. “He basically couldn’t hear his ears, so we administered aid to the best of our ability to help.”

This assistance didn’t stop at the cabin, all along the trail the pararescuemen came across people who needed assistance. The pararescuemen helped about five other people who were having problems with their knees, hips and lower back.

Once they concluded their route and arrived in Zermatt, Switzerland, the pararescuemen still weren’t finished. Although they had already been up and down mountains for two weeks, they decided to celebrate not by relaxing but by running five other people on mountain peaks which reach higher than 13,123 feet.
Overall Team Member of the Quarter

The Overall Team Member of the Quarter is Paul Bowen. Bowen, an engineer/scientist with Dynetics, Inc., was recognized by the Advanced Missile Signature Center (AMSC) for being a critical player in the success of literally hundreds of data sets of measured model samples for the THADD model. Bowen performed essential analysis and processing of hundreds of thousands of data points, both measured in the lab and from the field. His work has been pivotal in advancing the state of the art in missile signature modeling and has contributed to the successful technical execution of high-priority signature modeling projects.

Philipp Krepp
Team Member Investments
Krepp, engineer, was recognized for being a critical player in the design and engineering of the THADD model. His contributions have been instrumental in advancing the state of the art in missile signature modeling and have contributed to the successful technical execution of high-priority signature modeling projects.

Laurie Winton
Facilities Operations & Support Services
Winton, administrative professional, was recognized for her work on the personnel relocation team. Her contributions have been invaluable in ensuring the smooth transition of personnel and assets.

Anthony Barnett
Facilities Operations & Maintenance
Barnett, electrical technician journeyman, was recognized for his work on the personnel relocation team. His contributions have been invaluable in ensuring the smooth transition of personnel and assets.

Joe Migliaccio
Customer Service-External Integrated Test & Evaluation
Migliaccio was recognized for outstanding customer service in the THADD program. His contributions have been invaluable in ensuring the smooth transition of personnel and assets.

The Overall Craft Member of the Quarter is Willie Hill. Hill, an electrician journeyman, was recognized for being a highly motivated electrician with a can-do attitude who takes pride in his work and has earned the respect of craftsmen and engineers basewide. Hill has worked at AEDC for 37 years, the last several of those at PWT. In that time, he has gained extensive knowledge and experience in all aspects of electrical work and has become an invaluable member of the team.

Willie Hill
Craft Member Facilities Operations & Maintenance
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Gayle Wasson
Information Technology & Systems
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Lieutenant Clark, investments project manager, was recognized for her attention to detail and her role as action officer of the Facilities User’s meeting.

Airman 1st Class Eric Ball
Airmen Ball, financial services technician, was recognized for being proficient at solving travel and pay issues.

Master Sgt. Patrick Lazarus
Senior Non-Commissioned Officer-in-Charge
Sergeant Lazarus, quality assurance chief inspector, was recognized for initiating test facility major functional area audits which increased the inspection pass rate by 30 percent.

Tech. Sgt. Marvin Gardner
Non-Commissioned Officer-in-Charge
Sergeant Gardner, weapons safety manager, was recognized for his performance during deployment to Anderson AFB, Guam, in support of Operation Enduring Freedom.

Rachael Clark
Company Grade Officer
1st Lt. Rachael Clark, investments project manager, was recognized for her attention to detail and her role as action officer of the Facilities User’s meeting.

Richard Fraley
Civilian of the Quarter Administrative
Fraley, information technology specialist, was recognized for providing outstanding support as action officer for the HQ Air Staff Critical Asset Risk Assessment team visit.

Randall Quinn
Civilian of the Quarter Scientists/Engineer
Quinn, aerospace engineer, was recognized for performing superbly as the lead, Rocket Propulsion Flight for the Space and Missile mission area.

Sara Rozell
Civilian of the Quarter Clerical/Technical Support
Rozell, student trainee, was recognized for her self-motivation and demonstrated exemplary performance as a student trainee in the Financial Analysis Division.

Vicki Bell
NAF Category I
Bell, custodial worker, was recognized for being integral in the 2010 Air Force Inns Accreditation, which recognized the Housekeeping Team as providing some of the cleanest rooms they’ve ever seen.

Phillis Brown
NAF Category II
Brown, recreation aid at the golf course, was recognized for delivering excellent customer service at all times.

To advertise in the *High Mach*, call The Tullahoma News at 455-4545
Two students from the UTSI attending the 2010 Southeastern Regional Student Conference of the American Institute of Aeronautics and Astronautics (AIAA) were awarded second and third place in the Masters degree in mechanical engineering at UTSI. Zgheib has published several papers in reputable journals and has given talks at international conferences. Akiki has also contributed to the field through his research, with a focus on gas dynamics.

The Two-Dimensional Porous Channel Flow.
Mulligan’s Golf is open seven days a week from 7 a.m. to 9 p.m. “Good Morning Breakfast” open Monday through Friday. This includes two eggs, choice of bacon or sausage, choice of white or whole meal buns with one, biscuit and gravy and bagel. Available until 10 a.m. Lunch and dinner served Monday through Saturday. Mulligan’s Golf is open seven days a week from 7 a.m. to 9 p.m. “Good Morning Breakfast” open Monday through Friday. This includes two eggs, choice of bacon or sausage, choice of white or whole meal buns with one, biscuit and gravy and bagel. Available until 10 a.m. Lunch and dinner served Monday through Saturday.

Air Force Services is continuing our Scholarship drives: 7th place - $25, 8th place - $20, 9th place - $15, 10th place - $10. Customers who purchase a $4 or more gift certificate and Grand drawings: 7th place - $25, 8th place - $20, 9th place - $15, 10th place - $10.

Check out the Out Shop Monday/memory day charmed is to be sure you have a few things to brighten your day. Women’s shorts for $29.95, men’s shorts for $29.95 and tennis suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95 and new men’s and women’s rain suits for $89.95

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Ping Pong Ladder Tournament coming May 7. Singles and Doubles matches are scheduled by players Monday through Friday. Sign up for this event by June 1. Prizes will be given to the top three winners.

The Fitness Center will be open 8 a.m. – 4 p.m. for Memorial Day. No classes will be held.

Outdoor Rec (ODR) 454-6084

Beach Volleyball Tournament is coming May 29 to the GLC beach. Start off your summer with some fun outdoor volleyball. Competition gets underway at 10 a.m. and lunch will include hot dogs, chips, sodas and water. Teams of four consisting of ages 12 and older must enter by May 20. Entry fee is $25 per team. Late registration fee of $10 will be applied after May 20. There must be eight teams signed up and limited to no more than 32. The tournament will be single elimination. Each team will play a two game match against another team as a warm up before they being the tournament. The winning team will receive a trophy.

Would you be interested in a “Good Time in Gatlinburg” June trip package? The trip would possibly involve white water rafting on the Pigeon River, a zip line tour of the Smokies and a dinner show at the Dixie Stampede. The following package options are being offered. Package 1: one night, two days (June 5-6) with zip line and Dixie Stampede for $245. Depart from ODR at 5 a.m. June 5, ride the zip line at 1 p.m. EST then Dixie Stampede dinner and show at 8:30 p.m. EST. Return to ODR approximately 4 p.m. June 6. Another alternate to this package is departing at noon June 4 with Dixie Stampede at 8:30 p.m. EST then zip line at 1 p.m. EST June 5 and return to ODR approximately 8:30 p.m. EST. Depart from ODR at 5 a.m. June 5, rafting at noon EST then Dixie Stampede at 8:30 p.m. EST. Return to ODR approximately 4 p.m. June 6. An alternate to this package is depart at noon June 4 with Dixie Stampede at 8:30 p.m. EST. Raft at 11 a.m. EST June 5 and return to ODR approximately 5:30 p.m. EST. Package 2: one night, two days (June 5-6) with white water rafting and Dixie Stampede for $215. Depart from ODR at 5 a.m. June 5, rafting at noon EST then Dixie Stampede at 8:30 p.m. EST. Return to ODR approximately 4 p.m. June 6. An alternate to this package is depart at noon June 4 with Dixie Stampede at 8:30 p.m. EST. Raft at 11 a.m. EST June 5 and return to ODR approximately 5:30 p.m. EST. Package 3: one night, two days (June 5-6) with rafting, Dixie Stampede and zip line for $280. Depart from ODR at 5 a.m. June 5, then raft at noon EST and Dixie Stampede at 8:30 p.m. EST. Zip line at 11 a.m. EST then return to ODR approximately 5:30 p.m. All packages are set activities and there is no omitting of unwanted activities. If you are interested in any of these options, call 454-6084.

Brave Defenders training

A security forces Airman fires blanks from an M249 machine gun during the weapons familiarization portion of Brave Defenders training at Eglin AFB, Fla. (Photo by Airman 1st Class Anthony Jerrems)

Read more AEDC news at www.arnold.af.mil