

AUGUST 8, 2013

A Space & Missile Defense NewsWire

# THE EAGLE

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## 49th Missile Defense Battalion Soldiers train in Alaska



*Courtesy photo*

*A Soldier from Alpha Company, 49th Missile Defense Battalion, prepares to rappel at the Rock Site at the Northern Warfare Training Center located at Black Rapids, Alaska. Soldiers from the battalion recently conducted top rope and rappelling during the training.*

## SMDC schedules Change of Command ceremony for August 12

U.S. Army Space and Missile Defense Command/Army Forces Strategic Command announces the Change of Command from Lt. Gen. Richard P. Formica to Maj. Gen. David L. Mann in a ceremony scheduled for Aug. 12 at 9 a.m. in the Von Braun III auditorium on Redstone Arsenal. Mann will be promoted prior to the ceremony.



AUGUST 8, 2013

U.S. Army Space and Missile Defense Command/Army Forces Strategic Command publishes the Eagle bi-weekly as a digital newswire. The newswire is an authorized publication of the USASMDC/ARSTRAT in accordance with AR 360-1. The SMDC commanding general has directed that the publication of this periodical is necessary in the transaction of the public business as required by law. The views and opinions expressed in the Eagle are not necessarily those of the Department of the Army or SMDC. The Eagle is intended to inform members of the command on happenings within the Army space and missile defense community. Distribution is made to the service members, civilians and contractors, and to the general public.

COMMANDING GENERAL

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COMMAND SERGEANT MAJOR

Command Sgt. Maj. James N. Ross

DEPUTY TO THE COMMANDER

Ronald E. Chronister

DEPUTY COMMANDING GENERAL FOR OPERATIONS

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## SMDC leaders recognize heroism



Photo by Treva Slaughter

**Col. Jeffrey A. Farnsworth, front right, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command deputy commanding general for operations, and Command Sgt. Maj. James N. Ross, USASMDC/ARSTRAT command sergeant major, present Fort Greely Fire Chief James Degnan and the Fort Greely Fire Department with the Best Small Fire Department of the Army for 2012 plaque. Degnan accepted the award on behalf of the FGA Fire Department. Back row from left to right: Fort Greely fire fighters Edsel Scott, Matthew Plumlee and Robert Tucker. They were also presented with the Heroism Award.**

## DoD shortens furloughs

Secretary Of Defense Chuck Hagel issued a statement announcing the reduction of the number of civilian furlough days from the 11 days to six, bringing the civilian workforce back to a normal work schedule. Hagel's statement was released before a Pentagon news briefing on the subject on Aug. 8.

"As part of that effort at the Department of Defense, I am announcing today that, thanks to the DoD's efforts to identify savings and help from Congress, we will reduce the total number of furlough days for DoD civilian employees from 11 to six."

Civilian furloughs began on July 7 and were expected to be enforced until Sept. 30, the

end of fiscal year 2013.

Hagel thanked civilian workers for their patience and dedication during the "extraordinarily tough times, and for their continued service and devotion to our department and our country. I know how difficult this has been for all of you and your families."

Additional details will be provided through the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command chain of command G-1 in the near future.

For more information on the furlough notice, go to the website at [www.defense.gov/News/NewsArticle.aspx?ID=120587](http://www.defense.gov/News/NewsArticle.aspx?ID=120587).

# SMDC's Low Cost Targets saves Army money

**Jason B. Cutshaw**  
**SMDC Public Affairs**

**REDSTONE ARSENAL, Ala.** – The U.S. Army Space and Missile Defense Command/Army Forces Strategic Command is turning the old into the new, saving the Army testing funds and providing capabilities by using low-cost targets during missile defense testing.

The USASMD/ARSTRAT Technical Center has developed a realistic threat ballistic target called Zombie for use in testing the PATRIOT Advanced Capability-3 Missile Segment Enhancement, or PAC-3 (MSE), advanced missile defense systems.

Zombie uses government-owned material components that have reached the end of their useful life and are subject to consideration of demilitarization. The use of this government hardware instead of demilitarization ultimately saves the taxpayers' money.

During this era of budget uncertainty, Army missile defense testers looking to save money on ballistic missile targets can still meet their mission requirements but spend less to do so. SMDC has developed low-cost targets that cut expenses from the approximate \$30 million each for high-end targets, to approximately \$4 million for SMDC's low-cost Zombie targets. These savings will allow program managers to stretch their testing budgets and apply funding to where it is needed while reducing the program's overall testing budget.

SMDC members are using components from legacy systems and reconfiguring them to fly, in



*U.S. Army photo*

***A Lance missile is launched to provide a low-cost target for the PATRIOT Advanced Capability-3 Missile Segment Enhancement, or PAC-3 (MSE), advanced missile defense system. The U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Technical Center has developed the Lance alongside the Zombie as another in its low-cost suite of threat ballistic targets.***

modified configurations, as ballistic targets.

“Some of the legacy components are from systems that are referred to as ‘dead components’ or components that are not part of the active program’s future developments,” said Bryon K. Manley, Technical Center Flight Test Services chief. “The ‘rebirth’ of the dead components is where the term Zombie came from. People working this program love this name because of recent pop culture popularity, and even the PATRIOT interceptor program operators have used the name ‘Zombie Killers’ in their documentation. It is a name that people can get behind and get motivated.”

Zombie is an alternative to the high-cost, high-performance, high-

fidelity tactical ballistic missile targets historically used in PATRIOT PAC-3 testing, such as the Juno. Zombie is not a replacement for Juno, as Juno is still needed for the occasion when its specific, required performance capabilities are essential.

The Zombie idea is one of several low-cost ballistic targets that have been developed and are being developed. The Economical Target-1, the first in a suite of low-cost targets developed, was launched on its first flight in February 2012. Two other developments currently ongoing, however, add more flexibility and performance at longer ranges.

“When the developments are

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# Last SMDC Soldier completes tour of duty in Iraq

**Jason B. Cutshaw**  
**SMDC Public Affairs**

**REDSTONE ARSENAL, Ala.** – One U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Soldier's departure from Iraq is the end of an era in the command's history.

Col. Karl M. Kraus, USASMDC/ARSTRAT former deputy chief of staff, G-8, was welcomed home from Iraq July 7. While in Iraq, Kraus served as the Office of Security Cooperation, Iraq (OSC-I) J-8 comptroller. Kraus was the last SMDC Soldier in Iraq after more than 10 years of continuous presence supporting Operation Iraqi Freedom and Operation New Dawn.

While deployed from July 2012 through July 2013, Kraus was the senior Department of Defense resource management officer in Iraq. His division was responsible for controlling more than \$500 million in funding to support remaining DoD operations in Iraq. He was located in the Baghdad area in support of the U.S. Embassy and its State Department mission in Iraq.

Upon his return, Kraus talked about his mission and how he supported the troops while deployed.

"The OSC-I is a joint organization made up of Soldiers, sailors, airmen and Marines," Kraus said. "My division funded base life support, security, maintenance, transportation, etc. for all DoD personnel remaining in Iraq. We did everything from developing future resource requirements and requesting them from U.S. Central Command, to processing travel orders and contracting actions on a day-to-day basis to sup-



*Courtesy photo*

**Col. Karl M. Kraus, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command former deputy chief of staff, G-8, catches a ride on a helicopter as he traveled between bases during his deployment in Iraq. While in Iraq, Kraus served as the Office of Security Cooperation, Iraq (OSC-I) J-8 comptroller.**

port the OSC-I mission."

He also talked about the differences between being deployed and being in Huntsville with SMDC.

"The biggest difference between being deployed and being with SMDC was the sense of being part of a unified organization with a long-term goal at SMDC," Kraus said. "My deployment to the OSC-I was as an individual augmentee. All people assigned to OSC-I were on either one-year or six-month deployments to the organization. While I met some wonderful people and developed some long-lasting friendships, the organization always seemed to be in a state of transition. At SMDC, the team is built over time and people are typically there for years, not months.

"The more enduring focus of

SMDC is to provide space and missile defense Soldiers and expertise to the combatant commands and the U.S. Army always made me feel unique and special when I was with the command," he added.

Kraus said one of the highlights of his deployment was knowing his sacrifices were contributing to Iraq.

"The most gratifying thing about being deployed was being on the front line where the headlines are being made every day and knowing that the sacrifice my family and I were making on a personal level were contributing to the future security of the U.S. and to a more stable and democratic Iraq," Kraus said.

He said one of the downsides of being so far from loved ones is the time difference.

"Being eight or nine time zones ahead of daily life in Huntsville, it seemed like somebody was always having to get up early or go to bed late to be able to keep in touch with what was happening back home," he said.

Kraus reflected on what he learned about himself and his job during the deployment.

"I learned that the deployed environment is a great place to sharpen one's skills across the breadth of their area of expertise," Kraus said. "SMDC is a demanding organization from a resourcing perspective. After being the G-8 for one year, I had a reasonable understanding of the most difficult challenges. The learning curve started to get a little less steep. In Iraq, the learning curve never seemed to level off. One day we'd be justifying our re-

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# Army satellites providing information for future

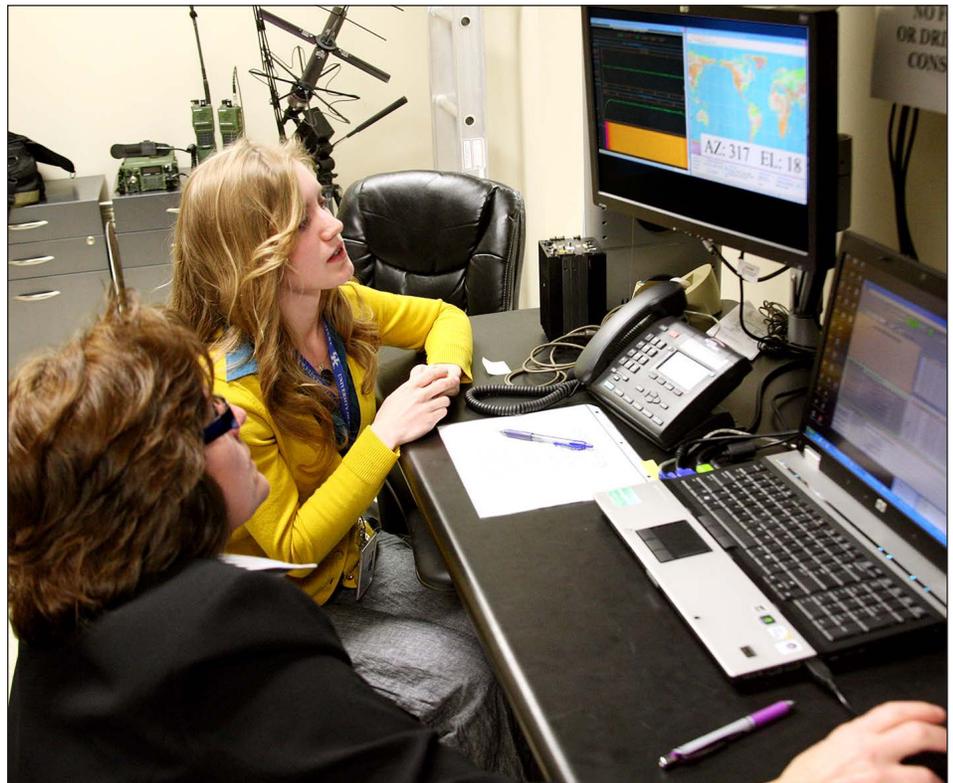
**Cindy McCoy**  
**SMDC Technical Center**

**REDSTONE ARSENAL, Ala.** – Nanosatellites designed by the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command and launched into orbit in September continue to provide usable data that will ultimately help meet the U.S. Army's growing need for space-based resources that support Warfighters.

The two SMDC-Operational Nanosatellite Effect, or SMDC-ONE, satellites are very small and inexpensive satellites that have been enabled largely by the revolution in consumer hand-held electronic devices. They were launched as auxiliary payloads on National Reconnaissance Office Launch 36 aboard an ATLAS V rocket to allow for testing. The auxiliary payload mission was termed Operationally Unique Technology Satellite, or OUTSat, for these secondary satellites sponsored by the National Reconnaissance Office.

The primary mission for the SMDC-ONEs, named Able and Baker, was to demonstrate voice relay through a low-earth orbit satellite using military standard radios, which had never been done before.

“Interoperability with standard issue military radios will likely be a necessity for future military satellite communication systems,” said John London, program manager



*Photo by Carrie E. David*

**Cindy McCoy, systems engineering and technical assistance, front, and Tamara L. Cottam, general engineer, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Technical Center's Concepts Analysis Lab, watch the paths of SMDC-Operational Nanosatellite Effect, or SMDC-ONE, satellites that are orbiting Earth.**

for nanosatellite development at SMDC. “Able and Baker were the first SMDC-ONE spacecraft to have the ability to support over-the-horizon voice relay, and the first nanosatellites capable of working with military standard tactical radios.”

Space capabilities can help reduce the required Soldier tactical footprint in the operating area. According to London, microsatellite and nanosatellite technology can help fill urgent needs responsively and at a relatively low cost.

“These small satellite constellation capabilities do not exist today but are achievable with current technology available,” London said. “We believe that success in these demonstrations will serve as a catalyst for the fielding of an innovative, effective, and highly affordable means of providing space-based capabilities necessary to achieve beyond-line-of-sight data communications and intelligence, surveillance and reconnaissance

**See NANOSATELLITES on Page 6**

Deadline for comments and submissions for the Aug. 22 issue is Aug. 16.  
 Please submit to Jason B. Cutshaw at [Jason.B.Cutshaw.civ@mail.mil](mailto:Jason.B.Cutshaw.civ@mail.mil).

## SMDC CSM, DCO visit Fort Greely



*Photo by Treva Slaughter*  
**Command Sgt. Maj. James N. Ross, left, command sergeant major, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, and Col. Jeffrey A. Farnsworth, USASMDC/ARSTRAT deputy commanding general for operations, visit the ballistic missile site and the Soldiers who work there with the 49th Missile Defense Battalion at Fort Greely, Alaska, July 30-31.**

### NANOSATELLITES from Page 5

capabilities across the tactical battlespace.”

To develop and leverage next-generation technology, the Technical Center set forth a program to develop, demonstrate and assess low-cost satellite systems that enable all types of data communications support to tactical forces. As part of this program, and to meet the Army’s need for space-based resources, the SMDC-ONE program was initiated in April 2008 and completed in one year.

The maiden launch of an SMDC-ONE occurred in December 2010 as a secondary payload aboard a Falcon 9 booster test flight to the International Space Station. This initial launch demonstrated the nanosatellite platform’s capability to support data extraction from

unattended ground sensors and spacecraft command and control via man-portable ground stations.

“This platform was modified prior to the OUTSat mission to have the capacity for voice relay between terrestrial tactical radios,” said Lt. Col. Patrick Marshall, SMDC’s JCTD portfolio manager. “Demonstrating this voice relay capability was the primary mission.

“On-orbit operations with these spacecraft have been conducted with tactical users in mind,” Marshall continued. “The operational test results fall into three main categories: unattended ground sensors, tactical radios, and command and control ground stations.”

London said they have learned a lot from SMDC-ONEs.

“The successes of these satellites

are a technical risk reduction for SMDC’s next generations of small operational prototype spacecraft,” London said. “The results of the on-orbit testing with Able and Baker have provided valuable data that will significantly assist in the creation of an operational spacecraft.”

According to London, much of the test results from OUTSat are already being incorporated into the design of the next generation of SMDC nanosatellites.

“Ground operations for Able and Baker have provided an opportunity to work out operational concepts before more advanced nanosatellites are deployed,” he said. “This next generation will be a prototype of the first operational nanosatellite that the U.S. Army could deploy and field.”

# Soldier talks with children about deployment

**Sgt. Benjamin Crane**  
**100th MDB Public Affairs**

**SANTA BARBARA, Calif.** – While he discussed what it meant for him to be a deployed Soldier, small hands filled the air and bright eyes stared at him during his speaking session at Camp Whittier July 11.

Staff Sgt. Craig Davis, a liaison officer for Detachment 1, 100th Missile Defense Brigade, California National Guard, was speaking to children attending Operation Purple Camp, which belongs to The Boys and Girls Club of America and is located in the mountains above Santa Barbara.

According to Debbie Hite, director for the United Boys and Girls Clubs of Santa Barbara County and Camp Whittier, the purpose of this yearly endeavor is to have local children of military parents meet other kids in the same position, see military-related items, hear from a Soldier about what it is like to be deployed, and pick up coping skills on how to deal with missing their loved one.

Davis, being a Soldier who has deployed and the son of a Soldier who has deployed, wanted to help.

“I love talking with kids,” said Davis. “They are always very entertaining.”

Davis currently works out of Vandenberg Air Force Base, Calif., but draws from his experiences when he was deployed to Baghdad, Iraq, as a military policeman with the 233rd Military Police Company in 2003 during his initial deployment into the country.

Davis has two young daughters who help him relate to the children he was speaking to.



*Photo courtesy of The Boys and Girls Club*

**Staff Sgt. Craig Davis, a liaison officer for Detachment 1, 100th Missile Defense Brigade, California National Guard, talks to the children attending Operation Purple Camp, a Boys and Girls Club program to help children deal with deployments, about being a Soldier at Camp Whittier in Santa Barbara Calif., July 11. The camp provided the children a chance to bond with other children who have parents in the military.**

“The kids asked all kinds of questions. Pretty much typical kid questions you usually receive like, ‘What kind of guns do you use,’ or ‘What kinds of letters do you like to receive,’” said Davis. “I just told them as much as I could.”

Davis relayed one particular story that captured the attention of all in the room.

“An infantry compound we were next to had caged lions on it,” said Davis. “I was surprised, and thought it was crazy. It’s not every day you see one of these up close, and we definitely didn’t expect to see one in a combat zone.”

While he talked, he presented a slide show of photos he took while deployed to Iraq.

Davis was also able to share with the children about being a child of someone who was deployed. His

father was deployed as part of a Joint Coalition Force nicknamed the Rough Riders that pulled convoy security during their 2004 yearlong deployment.

About 90 children listened to Davis speak. They came through in three different groups throughout the day, and every group was just as inquisitive as the next. While at the camp, there were plenty of unique opportunities for them.

The children were given the chance to see a military Humvee, eat a Meal, Ready to Eat, or MRE, and try on military firefighting gear.

“It all went really well considering all the challenges we faced organizing it this year (with sequestration),” said Hite. “But the kids were good and they all had a great time. They got a lot of time to bond as well.”

# Soldier gives injured civilian a 'Helping Hand'

**Sgt. Benjamin Crane**  
**100th MDB Public Affairs**

**FORT COLLINS, Colo.** – In the Army, Soldiers train as they fight, but sometimes it is not just in the fight that one uses skills honed in training; it is in everyday activities.

For Colorado Army National Guard Capt. Ronald Bailey, Headquarters and Headquarters Battery commander, 100th Missile Defense Brigade (Ground-Based Midcourse Defense), that training helped rescue an injured hiker July 31.

Bailey, his wife Carrie, and teenage son, Spencer, were hiking in Lory State Park when they came across an elderly woman who had been startled by a rattlesnake, fallen down and broken her wrist while trying to break her fall.

“We were on Arthurs Rock trail and had gotten about 45 minutes up the trail up to a scenic overlook that is about 800 feet up, and other hikers mentioned that there was a hiker who got startled by a rattlesnake and fell,” said Bailey.

He headed toward the injured hiker to see what he could do. He arrived to find the woman hurting and in shock. The Larimer County authorities had already been notified, so Bailey talked to the hiker and made sure she was hydrated and as comfortable as possible.

“She was in a precarious position and I thought I might have to fireman carry her out of there with the other ranger that was there,” he said. “But we waited it out and the other agencies arrived and brought a litter with them.”

Bailey was one of several hikers,



*Courtesy photo*

**Capt. Ronald Bailey, Headquarters and Headquarters Battery, 100th Missile Defense Brigade (Ground-based Midcourse Defense), wearing the orange hat and shirt, holds the litter as the rescue crews descend the trail after responding to a hiker who had fallen and broken her wrist July 31 in Lory State Park near Fort Collins, Colo.**

park rangers and rescue personnel to lift and carry the litter down the trail.

“I assisted carrying the litter all the way down the trail,” he said. “It reminded me of one of the (physical training) sessions our unit had at Peterson Air Force Base (Colo.) where we practiced combat skills in the sand box, including tasks (that) were about evaluating casualties, treating for shock and litter carries.”

For about a year now, members of the 100th Missile Defense Brigade have been doing group physical training that is more than just push ups and jumping jacks. Events such as low crawling and shuttle runs develop strength in the Soldiers’ upper bodies, while events like picking up and carrying a litter

with a dummy on it strengthens leg muscles.

Leg muscles Bailey had to use to walk the litter more than a mile down rocky terrain to the trailhead.

Bailey’s wife and son had descended the trail to avoid interfering and wait.

“They were trying to figure out how they were going to get her off the mountain to the ambulance,” said Carrie. “Because Ron wasn’t sure exactly how long it was going to be and we were hearing thunder, he sent Spencer and me back down the mountain. A couple hours later I discovered he had helped carry this woman on a gurney more than a mile down the mountain. Even when this guy (Ronald) isn’t wearing a uniform he is still my hero.”

# Soldiers become SHARP for their unit

E Company, 53rd Signal Battalion (SATCON) selected two of its leaders to attend the annual Sexual Harassment/Assault Response and Prevention, or SHARP, course at Camp Shields on Okinawa, Japan.

1st Lt. Marlon Colon and Staff Sgt. Michael Hopper graduated from the SHARP course and became the newest victim advocates in the battalion July 19. Colon was selected as the class leader for the course.

Colon and Hopper are now trained to take on the challenge of accomplishing the Army's priority of eliminating sexual harassment and assaults within the ranks.

The SHARP course is a two-week instructional course that prepares participants with basic guidelines on how to operate and function as advocates for their units.



*Courtesy photo*

**Maj. Gen. James C. Boozer Sr. and Command Sgt. Maj. Steven L. Payton, U.S. Army Japan commander and command sergeant major, with all Okinawa Sexual Harassment/Assault Response and Prevention, or SHARP, representatives on July 25. 1st Lt. Marlon Colon, E Company, 53rd Signal Battalion (SATCON); is in the middle row, second from the left. Staff Sgt. Michael Hopper, E Company, 53rd Signal Battalion (SATCON); is in the front row, fourth from the right.**



*Photo by Giff Johnson*

## Kwaj welcomes new commander

**Thomas E. Webber, acting director, Technical Center, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, presents the unit colors to Col. Nestor A. Sadler, incoming commander for the U.S. Army Garrison, Kwajalein Atoll, Republic of the Marshall Islands, during and assumption of command Aug. 2. Looking on behind them is Command Sgt. Maj. Roderick Prioleau, U.S. Army Garrison-Kwajalein Atoll command sergeant major.**

## SMDC plays ball



Photo by Dottie White

**Sgt. Maj. Rod Beach, G-3, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, makes it safely to second base during Team Redstone's softball game against the Huntsville Senior Rocket All-Stars July 26 during Armed Forces Celebration Week in Huntsville, Ala. The Rocket All-Stars won 22-10.**

## DEPLOYMENT from Page 4

source requirements to the Office of the Secretary of Defense, Comptroller so they could relay them to Congress. The next day we'd be trying to figure out how to pay for something seemingly as simple as how to pay to ship home someone's personal property.

"There seemed to be a new issue every day, and they all seemed to accumulate," he added. "It challenged me to expand the level of expertise I had in how to resource deployed forces on a daily basis."

When asked if he would change something about the deployment, Kraus spoke of it as a learning experience and said he did miss the familiarity of working in a unit.

"The deployment was spent dealing with the cards we were dealt

rather than wishing for things to be different," Kraus said. "However, looking back if I could change one thing, I'd like to have deployed with a unit rather than as an individual. I think deploying as a trained unit would allow us to be more effective than simply deploying individuals and trusting there would be sufficient expertise amongst the individuals to get the job done."

When talking about the service members and civilians he worked with and the mission they were accomplishing, Kraus said they were absolute professionals and he would be glad to serve with any of them again in any environment.

Additionally, Kraus mentioned the importance of supporting the troops deployed overseas in harm's way.

"We all know that those who are deployed are placing their lives on hold while they serve and sacrifice for our country, and therefore for us and our families back home," Kraus said. "The least we can do for these heroes is to pledge our genuine support to do all we can to help them succeed in their mission and to help, perhaps, to make their deployment a little easier.

"Every deployment is different and every deployment has its own challenges," he added. "I know I'll never be able to thank everyone, but on behalf of myself and my family, I would just like to thank all the members of SMDC and the greater Redstone/Huntsville community who supported us over the past year."

# History: Jupiter C achieves re-entry

**Sharon Watkins Lang**  
*SMDC command historian*

Although the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command is not directly affiliated with the Army Ballistic Missile Agency, or ABMA, under the direction of Dr. Wernher von Braun, the achievements on Aug. 8, 1957, are an important step in the nation's space history.

The Jupiter C was a modified Redstone ballistic missile developed to test re-entry concepts and the ablative nose cone developed for the Jupiter intermediate range ballistic missile.

Contemporary studies had already determined that missiles traveling 250 miles would be faced with issues of thermal heating upon re-entry.

Given the 1,500-mile range and the altitudes to be achieved in a Jupiter launch, one of the key difficulties then was not the launch but rather achieving a successful reentry.

Four options were explored to protect the nose cone in re-entry. They were: ablation, heat sink, radiation, and transpiration.

Following initial testing, the ablation method proved the most feasible and various products were investigated to determine which protective coating – plastics, fibers or ceramics – would best suit the purpose. In the end, three scale models were developed to test the concept.

The three-stage Jupiter C, was built upon a modified Redstone missile.

The Redstone tank system was actually lengthened by 8 feet to allow for the additional propellant needed for these tests. The second stage was composed of a ring of 11 scaled-down Sergeant rocket engines. A third stage involved three scaled-down Sergeant rocket engines. The test nose cone was perched atop the third stage.

On Aug. 8, 1957, at 1:58 a.m., Jupiter C missile RS-40 successfully launched from Cape Canaveral, Fla. This third test in the Jupiter C series carried a one-third scale Jupiter nose cone. The test flight achieved an altitude of 285 miles and a range of 1,330 nautical miles.

With Navy vessels and frogmen at the ready, the nose cone was recovered from the Atlantic Ocean. This was the first time a man-made object had been recovered from space by the United States.

Aboard the ship, the scientific recovery team carefully



*U.S. Army photo*

**President Dwight D. Eisenhower looks at the nose cone of a Jupiter C after a successful test of the missile in 1958.**

removed the parachute harness, dried the components with compressed air, and cleaned and lubricated all moving parts to remove any trace of the salt water.

The nose cone was then transported to the lab, where it was further assessed for any damage or wear and tear caused by the speed and heat of re-entry.

Archived news footage, available at <http://archive.org/details/nosecone8aug57>, illustrates the launch and recovery process and actual impact of re-entry upon the system.

The nose cone was also the first to successfully carry mail through space. The "rocketmail" was a letter from Dr. Kurt DeBus, director of the ABMA Missile Firing Laboratory, to Maj. Gen. John B. Medaris, then ABMA commander. The letter was later loaned to the Smithsonian Institution.

The August 1957 flight was the third and final test in this series. With the ablation method proven for nose cone re-entry, the ABMA began to work toward a full-scale nose cone re-entry.

Subsequent flights of the Jupiter C successfully delivered satellites into space and safely carried animals into space and returned them to Earth.

**TARGETS from Page 3**

complete, SMDC will be able to make these low-cost target options at lower-than-traditional target costs,” Manley said. “The goal is to build huge capabilities at a low cost.

“Lance is another in our low-cost target suite,” he continued. “For less than \$500,000 apiece, we are providing eight telemetry configured Lance missiles to get real tactical ballistic missile test articles to exercise a defense system at a fraction of what other targets are normally available in the integrated missile defense community.”

On June 6, a PAC-3 (MSE), missile successfully engaged, intercepted and destroyed a second Zombie low-cost threat representative target during a flight test at White Sands Missile Range, N.M.

“The idea behind our approach is to develop a whole new suite of targets that utilize old rocket motors that the Army has already invested in to develop and have no future planned usage,” Manley said. “We are taking them and retrofitting and reconfiguring them to fly in a manner for which they were not designed.

“From our mission perspective, we are looking for solutions to allow our customers to save money in the target’s arena, so they can increase the amount of testing opportunities and ultimately be successful,” Manley said.

“The SMDC Technical Center is at the forefront of providing the kind of missile defense testing capability to really save the Army a lot of money on its targets,” Manley added.



*U.S. Army photos*

**A PATRIOT Advanced Capability-3 Missile Segment Enhancement, or PAC-3 (MSE), advanced missile defense system hits its Zombie target during a recent ballistic missile target test. The U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Technical Center has developed the Zombie targets that cut expenses from the approximate \$30 million each for high-end targets, to approximately \$4 million for SMDC’s low-cost Zombie.**



**A PATRIOT Advanced Capability-3 Missile Segment Enhancement, or PAC-3 (MSE), advanced missile defense system launches during a recent ballistic missile target test. The U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Technical Center is providing a low-cost, realistic threat ballistic target called Zombie.**

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