

# The Eagle

Published for the men and women of the U.S. Army Space and Missile Defense Command

October 2001

## News Bits

### Security Awareness Days set for Huntsville, Arlington

Terrorist attacks and other threats have filled media reports since Sept. 11. Keeping the SMDC work force and its technologies safe is a challenge facing all SMDC personnel. As today's threat-intensive environment becomes more hostile, it is vital for each of us to be more equipped with the tools, techniques and knowledge needed to safeguard not only our critical technologies but also our workforce and family members. For these reasons, a Security Awareness Day for employees and family members will be held at SMDC facilities in Arlington and Huntsville on Oct. 26. The theme for all locations is: "Security Awareness: Now More Than Ever!"

The following topics will be offered: force protection, weapons of mass destruction, travel and safety advisories, intelligence support to SMDC, home computers and chat rooms, and round table discussions (family support, Red Cross). The event is sponsored by the deputy chiefs of staff for Intelligence, Information Management, and Operations.

Events at both locations are open to all soldiers, family members, civilians. The points of contact are Lt. Col. Bridges, 955-3502 or Ms. Brenda Turner, 256-955-5468 (Huntsville) or Mr. Ed Longo, 703-602-6736, Arlington.

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### Countering asymmetrical threats

## Space, missile defense achievement milestones

by Lt. Gen. Joseph M. Cosumano, Jr.  
Commanding General

The recent terrorist attack on our homeland has shown asymmetrical threats are growing in their level of destructiveness.

To defend against this threat, the nation's Space and missile defense communities, including our command, have been working hard over the last year to achieve many important milestones.

Within Air and Missile Defense, we have taken several important steps. The country's first hit-to-kill missile defense, Patriot Advanced Capability (PAC-3), was delivered at the end of September to its first Army units. It will provide lower-tier protection to deployed troops against enemy aircraft, low-flying cruise missiles, and short- and medium-range ballistic missiles. In tests leading up to its deployment, the PAC-3 proved its effectiveness with eight intercepts in nine attempts against a variety of targets.

In addition, the PAC-3 missile will be the heart of a highly maneuverable missile-defense system with 360-degree radar coverage, the Medium Extended Area Defense System (MEADS), under development by Germany, Italy and the United States. Recently, these countries signed a Memorandum of Understanding authorizing the awarding of a contract to enter a development phase called the Risk Reduction Effort.

Another successful Air and Missile Defense effort, this time between the United States and Israel, was the fielding of Arrow to the first Israeli units about a year-and-a-half ago. For that country, Arrow is its homeland missile defense.

The Army's upper-tier missile defense against tactical missiles, the Theater High Altitude Area Defense (THAAD) system, is currently in the Engineering, Manufacturing and Development phase. THAAD's initial configuration should be fielded in Fiscal Year 2007. Increased funding could accelerate fielding.

Cruise missile defense is another challenge, because low-flying cruise missiles are cheaper to produce and harder to detect than ballistic missiles. SMDC's Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System (JLENS) Project Office in Huntsville has made such progress on its system that it has been transferred to the Program Executive Office for Air and Missile Defense, and the JLENS PO is exploring accelerated development options. In July, the country's only strategic missile defense system under development, successfully intercepted a long-range target over the Pacific, giving it its second interception in four attempts. The heart of the system, its Exoatmospheric Kill Vehicle, as well as the Ground Baser Radar prototype and local command and control system, all evolved out of SMDC's technology base. Also, SMDC's Ballistic Missile Targets Joint Project Office developed the target used in the test, as it does for all military missile-defense programs. In addition, SMDC's Ronald Reagan Ballistic Missile Defense Test Site provided stellar support for this highly successful test.

Just before that test, the Secretary of Defense announced the reorganization of our myriad ballistic missile defense development efforts. No longer would there be a distinction

— Continued on Page 2



(Photo by Dottie White)

### Force protection measures taken at SMDC facilities

Joe Green and Ed Shaddix, security officers with Paragon Systems, conduct a vehicle inspection at the Huntsville, Ala., U.S. Army Space and Missile Defense Command facility. Similar force protection

measures were instituted throughout SMDC and at Department of Defense installations around the world following the September 11th terrorist attacks against the World Trade Center and the Pentagon.

# SMDC achievement milestones (con't)

between Theater Missile Defenses and National Missile Defenses. Rather, there will be simply one Ballistic Missile Defense System, consisting of multiple layers designed to attack enemy ballistic missile threats at one or more stages of their trajectory: the boost, mid-course or terminal phases. With this new system architecture, the existing National Missile Defense system will be known as the Ground-based Midcourse Defense system. The THAAD missile is a key component of the terminal phase.

SMDC has been advocating the concept of Integrated Missile Defense (IMD) for some time and is responding to the new approach by establishing a consolidated IMD effort. The command's TRADOC System Manager for National Missile Defense is charged with the command lead for missile defense, responsible for coordinating all combat development activities for missile defense integration and developing a campaign plan and execution strategy to incorporate the four pillars of missile defense.

It is notable that the mid-course system, PAC-3, and THAAD are the only hit-to-kill systems to ever achieve intercepts of actual ballistic targets.

SMDC has taken the lead in the Army in studying ways to leverage directed energy (DE) on future battlefields.

In another international effort with the Israelis, SMDC and the Israelis developed a Tactical High Energy Laser (THEL) demonstrator that successfully lased short-range rockets in a series of tests over the last 16 months, culminating in a near simultaneous shutdown of multiple Katyusha rockets.

As a result of the potential shown with THEL, the United States and Israel are now funding an engineering trade study to develop a Mobile THEL (MTHEL).



(U.S. Army Photo)

The Army begins fielding the Patriot Advanced Capability (PAC-3) this month.

Other interesting DE efforts include a compact, solid-state laser with high potential for future combat applications and an Advanced Tactical Laser Advanced Concept Technology Demonstration. This is a multi-service sponsored demonstration to develop a laser weapon system to conduct precision strikes against a variety of targets of primary interest to the Special Operations Command. It will be sized to roll on and off a variety of aircraft.

Last month, SMDC showed its commitment to using lasers when it stood up its Directed Energy Center of Excellence at its High Energy Laser Systems Test Facility, White Sands Missile Range, N.M.

While these developments are all concrete steps towards achieving effective defenses against missiles and other air threats, a great challenge remains to integrate these and all the other Service systems comprising the overall multi-layered missile-defense system. To that end, SMDC and other DoD entities have been working hard on development of a Single Integrated Air Picture (SIAP) warfighting capability. In July 2000, the Joint Requirements Oversight Council (JROC) chartered the SIAP System Engineering Task

Force to achieve this goal. For its part, SMDC established the Office of Technical Integration and Interoperability to provide the Army's support to the task force.



An artist's drawing of a V-22 Osprey using an Advanced Tactical Laser against a ground target.

Effective missile defenses also require extensive use of Space assets, which provide commanders with the near real-time intelligence, imagery, weather forecasting, global positioning, and communications necessary to marshal forces quickly and with pinpoint accuracy.

Space is a great enabler, and to better leverage it, the Secretary of Defense recently directed a reorganization of military Space agencies.

In response to this directive, SMDC is moving on several fronts to normalize Space in the Army.

Recently, SMDC graduated its first class of Functional Area 40 Space Operations officers.

In addition to its new Space officers, the Army Space Command (ARSPACE) is standing up Army Space Forces, which consist of three unique battalions.

The 1<sup>st</sup> Satellite Control Battalion controls satellite payloads and networks to provide critical command-and-control paths for ground-forces communications.

The 1<sup>st</sup> Space Battalion has two missions, missile warning and Army Space support teams. The Missile Warning Company uses Joint Tactical Ground Stations to downlink missile-launch warning and tracking information real-time to ground commanders. The battalion also fields the Army Space Support Company. The company has five teams, each associated with a unified command. The teams provide expertise on how to access Space assets for communications, weather forecasting, terrain analysis and mapping.

Finally, the 193<sup>rd</sup> Space Support Battalion, a newly activated unit of the Colorado Army National Guard, provides ARSPACE with two additional Space support teams and assistance in information technology.

In addition to the Army Space Forces, ARSPACE provides soldiers for SMDC's Space and Missile Defense Battle Lab. Their job is to find military uses for emerging Space technology and accelerate the fielding of new systems.

We also have Army astronauts, assigned to the Johnson Space Center in Houston. In the last year, two of our astronauts, Lt. Col. Jeff Williams and Lt. Col. Pat Forrester, have participated in space shuttle missions.

SMDC's Army Space Program Office (ASPO) is responsible for the Army Tactical Exploitation of National Capabilities Program. The program uses streamlined acquisition techniques to rapidly exploit current and future tactical potential of national Space systems and integrate the capabilities into the Army's tactical decision-making process.

ASPO's Tactical Exploitation System

(TES) allows ground troops to access satellite images of the battlefield and receive signal intelligence. This summer, TES was fielded by the V Corps in Germany and the XVIII Airborne Corps in North Carolina. In September, it was fielded at Fort Gordon, Ga.

Another ASPO system, Grenadier BRAT, gives commanders the ability to track friendly forces in near real-time deep on the battlefield. Currently, Grenadier BRAT is undergoing acceptance testing before fielding in Kuwait.

Another key SMDC major subordinate element is the U.S. Army Space and Missile Defense Battle Lab (SMDBL). It has developed a remarkable track record for bringing innovative theater air and missile defense command and control technologies to support the warfighter. The latest example is the Future Operational Capability (FOC) Tactical Operations Center (TOC). Developed for the 32<sup>nd</sup> Army Air and Missile Defense Center, the FOC provides a single integrated air picture for theater air and missile defense operations, advanced visualization, and enhanced communications capabilities.



(Photo by Mike Biddle)

Lieutenant Colonel Greg Hoscheit, center, discusses the AWARE system with Gen. Ralph Eberhart, the commander-in-chief of the U.S. Space Command.

SMDBL also recently participated in a Joint Contingency Force Army Warfighting Experiment (JCE AWE) Enroute Mission Planning and Rehearsal System (EMPRS) demonstration. Using advanced aeronautical satellite communications, innovative information management techniques and an inter-aircraft Local Area Network, this system provided an airborne battalion task force and follow-on airland forces with the ability to maintain battlespace situational awareness while enroute to the area of operations. According to the JCE AWE final assessment report, this successful demonstration of EMPRS proved its potential to "fundamentally change assault missions" in the future.

As the Army component to U.S. Space Command, ARSPACE will provide support to SPACECOM for two new missions assigned to that joint command last October: Computer Network Defense and Computer Network Attack, to counter another new asymmetrical threat of the Information Age. ARSPACE is already implementing measures in these areas to ensure ARSPACE forces can accomplish their other assigned missions.

As you can see it's been a highly productive and challenging year for SMDC.

That said, the increasing asymmetrical threats we are seeing make it our duty to continue to produce more effective Space, missile-defense, directed-energy and computer-network systems for our Objective Force.

I am confident SMDC's greatest resource, its highly skilled soldiers and civilians, will meet this challenge.

**Command Editorials**

# SecArmy looks to Army's finest hours

My fellow field soldiers all over the Army, from Kosovo to Korea, wherever you may be happening to pull your duty: As you all know by now, our nation, this department and the United States Army was attacked Sept. 11.

I want you to know that we have survived that attack. That attack has made us stronger and we are now engaged in what our president has called the first war of the 21st century. We will win that war.

Now the war is not going to be won in a single day, or a single raid or a single event. We are engaged in a campaign against a cowardly enemy. And it will take us a while to root him out. But let there be no question

about our resolve, our discipline, our professionalism, our tenacity; and in the end, the result of that war.

It started at a point of time dictated by the enemy. It will end in a point of time — as the president has said — of our choosing.

It won't be easy. But few things that are truly worth doing ever are. This is our challenge: to preserve the freedoms that make America what Abraham Lincoln called the "last best hope on earth." And I can assure that the civilized people in countries of the world have united in support of our cause.

You and I, the American soldier and the veteran, now carry the hopes of the American people on our shoulders. I know that you will do your duty. I have every confidence in that as does the Secretary (of Defense), the Chief, and the President of the United States.

America expects no less of you and I and we can do no more. And always know that

wherever you are, your nation stands behind you with absolutely solid support.

The Chief, General Shinseki and I, extend our condolences, and ask God's tender mercies on our foreign comrades and their loved ones. We have 74 people unaccounted for in our headquarters. We will mourn them and we will shed our tears. They are part of our family. But once that's finished, we will go forward, with anger and with purpose in our hearts, to see this campaign through to the end.

Tuesday, Sept. 11, has already been described as the darkest day in American history. I say to our adversaries, be very, very careful, for you are going to experience the finest hours of the United States Army as we prosecute this campaign against you.

God bless you, God bless the Army. God bless our great nation.

**The Honorable Thomas E. White**  
Secretary of the Army

## Force protection begins and ends with each of us

The recent cowardly terrorist attacks on our country only reinforce the fact the security of our people, information and critical resources is our top priority.

Our mission is to defend the United States, and every member of this command is part of that defense. Each of us has a place in the protective barrier that stands between us and the terrorists, because as we have seen with these recent tragic events, we are only as strong as our weakest link.

To that end, all SMDC employees should give special attention to the guidance issued periodically on anti-terrorist force protection and operational security.

In addition, commanders and senior leaders must take an active and personal interest in the protection of our critical resources by integrating the procedures outlined in this guidance.

Never take security for granted and never assume it is someone else's responsibility. Security is everyone's business, every day.

If you have any questions or observe anything suspicious, please take the time to contact your local force protection/operational security office.

We are locked in a major struggle against the forces of evil, but I am confident we will prevail, especially if we are vigilant in maintaining that protective barrier of security.

In connection with the recent tragic events, I also invite you to read important messages on this page from the Secretary of the Army and the Chief of Staff of the Army on the great challenge before us.

Lieutenant General Joseph M. Cosumano, Jr.

## Chief of Staff urges readiness

As the Secretary has described, on the 11th of September, there was a horrifying attack against the United States, against our people, against our property, against our sovereignty.

But it was more than just an attack against the United States, it was an attack against all who embrace the principles of peace and freedom and democracy.

The Secretary and I would like to ensure you that we're OK here in the Department. We're up and operational and our communications get better every day. We are caring for our injured. We are accounting for our missing.

As the Secretary has indicated, the Army has released the names of 74 of our friends and colleagues who are unaccounted for. We are in pain. We are angry.

We'd like to remind you that we want you to remember that you're the field Army. Nothing's changed. Your missions are as assigned. And we expect you to be trained

and ready each and every day.

And as the Secretary has also indicated, President Bush has declared this the first war of the 21st century. Well, so be it.

Our non-negotiable contract with the American people is to fight and win the nation's wars, decisively.

And I say again, we expect you to remain trained and ready. Respond quickly and professionally when called.

Finally, the families and loved ones of our colleagues who are unaccounted for are in pain. Now is a good time to reach out, embrace them, provide them the support they need.

Thank you for what you do to make this Army the magnificent Army that it is. Take care of each other. Be safe. God bless each and every one of you. God bless the Army. God bless America.

**General Eric K. Shinseki**  
United States Army Chief of Staff



(U.S. Army Photo by Sgt. Carmen L. Burgess)

Minutes after the dust settles from the collapse of the outer wall of the Pentagon, Tuesday, Sept. 11, 2001, rescue personnel return to the scene to continue efforts.

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# Force protection first SMDC priority

Force protection measures taken at U.S. Army Space and Missile Defense Command facilities after the Sept. 11th terrorist assaults on the World Trade Center and the Pentagon have enabled the workforce to continue working in greatly improved security environments.

In the days following the attack, SMDC leaders took many necessary precautions and held several town hall meetings with soldiers and civilian employees to keep them informed about how evolving security measures would affect them while also ensuring their ability to work in safe and secure environments.

Among the more noticeable measures in Huntsville has been the erecting of double concrete barriers around the perimeter and the building. Its four entrances were reduced to one entrance and an exit.

Identification checks for personnel entering the SMDC grounds and random vehicle inspections have, on occasion, caused delays entering the parking lot.

Security guards note that most people seem pleased with the security measures even when they wind up randomly selected for a vehicle inspection.

Security officials have asked employees to increase their own observations of the usual and the unusual in the workplace. They have also noted that employees should not expect security to be a routine matter because a good defense is avoiding patterns that can be observed and relied upon.

Public Affairs officials note that employees should be careful to not discuss security



(Photo by Dottie White)

Joe Green and Ed Shaddix, security officers with Paragon Systems, conduct a vehicle inspection at the Huntsville, Ala., U.S. Army Space and Missile Defense Command facility.

measures that are not apparent to the general public. Media queries should be passed through the Public Affairs Office to ensure coordinated responses and to allow for security officials to be consulted as necessary.

An apt description of our times was given

in a meeting in early October. SMDC, the Army and the Nation are engaged in a marathon, not a sprint. We should not expect a quick end to our enhanced security measures, but we can maintain environments in which we can be safe and accomplish our missions.

## Civilian "Purple Heart" award established

by Gary Sheftick

**WASHINGTON (Army News Service, Sept. 27, 2001)** —A new Defense of Freedom medal will honor DoD civilian employees injured or killed in the line of duty.

Secretary of Defense Donald H. Rumsfeld unveiled the new medal Sept. 26. He said the medal will be the civilian equivalent of the military's Purple Heart. Its first recipients will be DoD civilians injured or killed in the Sept. 11 terrorist attacks against the Pentagon and World Trade Center.

"The president, of course, has made clear that the attacks were not just acts of terror," Rumsfeld said. "They were acts of war, military strikes against the United States of America. As such, those Department of Defense employees who were injured or killed ... were combat casualties."

The first presentations of the new medal may take place in October, according to Charles Abell, assistant secretary of Defense for Force Management Policy. He

said the medal may also be awarded to Defense contractors, on a case-by-case basis, depending upon their involvement in DoD activities.

Because criteria for the Defense of Freedom medal parallel the Purple Heart, it will be awarded to civilians who suffer serious injuries, Abell said, "not a scratch, not a bump on the head."

Nominations for the medal can be submitted by anyone aware of the action, officials said, not just by those in an employee's chain of command.

The medal was designed by artists at the Institute of Heraldry, an Army organization at Fort Belvoir, Va., responsible for military insignia.

The front of the medal consists of a golden circle framing a bald eagle holding a shield. It exemplifies the principles of freedom and the defense of those freedoms upon which the nation is founded, officials said.

The back of the medal is inscribed with "On Behalf of a Grateful Nation" with a space

for the recipient's name to be inscribed. A laurel wreath represents honor and high achievement, officials said.

A ribbon above the medal is red, white and blue. The red stripes commemorate valor and sacrifice, officials said. The wide blue stripe represents strength. The white stripes symbolize liberty, officials said. They added that the number of red stripes represents the four terrorist attacks using hijacked airplanes and the single blue stripe represents the strike on the Pentagon.

"These strikes were the first on American soil since the Second World War, and the first attack on our capital by a foreign enemy since the War of 1812," Rumsfeld said.

"These assaults have brought the battlefield home to us. As a result, a large number of DoD civilians gave their lives in combat. Their sacrifice also requires recognition.

"The establishment of this decoration is a fitting honor and a tribute to the extraordinary dedication and service of the department's civilian workforce," Rumsfeld said.

## Civilian employees should take steps to be prepared

Recent events with the attacks on the World Trade Center and the Pentagon have shown the vulnerability of us as United States citizens to aggression from those desiring to harm our country, its people, and the American way of life. The Government and the Armed Services took immediate steps to protect and defend the United States and its people. These steps help ensure we can go about our day-to-day business knowing our lives are as secure as circumstances will provide. Constant vigilance and individual preparedness are now and could be a way of life for the future.

Network news stations have been continuously broadcasting the attacks and the recovery aftermath. We can see the heroic

recovery efforts by rescue teams working to remove debris, identify casualties and notify their families or next of kin. These efforts have been unceasing and conducted around the clock since the Sept. 11, 2001, attacks. The rescue workers were severely hampered in their identification and notification efforts because positive identification was impossible.

We, as individuals, must take an active and personal interest in planning for any possible unexpected occurrence, whether it is an automobile accident, tornado, hurricane, or other disaster resulting in the loss of life. A personal dental panoramic x-ray and DNA record are important in assisting rescue and medical authorities. In addition,

you may want to consider whether your will is up-to-date and whether you need a special durable power of attorney. These documents provide stability and assistance to your family when unanticipated events happen.

Our lives are changed, but I am confident we, as a country and people, will overcome these obstacles in time. However, in the interim we must all plan and prepare for any conceivable contingency to the best of one's ability.

*SECURE THE HIGH GROUND*

**JOSEPH M. COSUMANO, JR.**  
Lieutenant General, USA  
Commanding

# ASPO deploys Tactical Exploitation System to Navy Fleet Battle Experiment - India

**China Lake, Calif.**—The Army Space Program Office's (ASPO's) Tactical Exploitation System-Forward (TES-F) deployed to China Lake, Calif., in mid-June to participate in the Navy's Fleet Battle Experiment - India (FBE-I).

The TES-F is a ground station that receives, processes, exploits, and disseminates data from national satellites, and both theater and tactical sensors. TES-F combines all Tactical Exploitation of National Capabilities (TENCAP) functionality into a single, integrated, scaleable system specifically designed for split-based operations. TES products are used by warfighters to focus sensors, provide situational awareness, conduct Intelligence Preparation of the Battlefield (IPB) and perform deep targeting functions.

The TES-F ground station is a key part of the emerging Distributed Common Ground Station—Army (DCGS-A) architecture.

Approximately 40 soldiers from Bravo Company, 319<sup>th</sup> Military Intelligence Battalion participated in FBE-I. The deployment provided 319<sup>th</sup> analysts a real world training opportunity to increase their experience in collecting, processing, exploiting and disseminating live sensor data collected from a variety of sensors participating in the experiment. Live sensors participating in FBE-I included National Technical Means (NTM), U-2 surveillance aircraft, P-3 Hairy Buffalo, P-3 N24 (Test bed), F/A-18 (ATARS) and JSTARS.

The Navy's theme for FBE-I was

*Operationalizing Network Centric Warfare*. Specific goals for the experiment included decreasing sensor-to-shooter timelines for engagement of Time Critical Targets (TCT), and demonstrating an operational Distributed, Joint, Network-Centric Architecture, which will enable the Army and Navy to rapidly generate target nominations for engagement.

The Army's TES-F played a key role in the experiment, providing imagery and signals analysis reporting to the Navy's TES (TES-N) onboard the *USS Coronado*, which was deployed in the Pacific off San Diego. The experiment provided opportunities to exercise the collective prosecution of targets through joint component sensor utilization and inter-service sensor cross-cueing. As TES-F analysts determined targets, the targets were either passed from TES-F to the TES-N, or to the U.S. Army/U.S. Marine Corps Advanced Field Artillery Tactical Data System (AFATDS) for engagement in the Army's area of influence.

Highlights of the experiment included:

- TES-F and TES-N demonstrated control and hand off of the U-2 across Services to provide federated operations. This was achieved by handing off the control of the U-2 from the Army TES-F at China Lake to the Navy's TES-N on board the *USS Coronado* and receiving control back.
- National imagery was received by TES-F and exploited by the Army ana-

lysts at China Lake and posted to the Imagery server on board the *USS Coronado*. This feature provides more robust and redundant operations for the Navy.

- TES-F demonstrated receipt of Electro Optical images from a U.S. Marine Corps FA-18 ATARS fighter on multiple occasions. Images were clear and provided remarkable details.
- By demonstrating receipt of data from varying ISR collectors, TES-F effectively contributed to the experiment by supplying additional information that the *USS Coronado* could not directly downlink, due to limited antenna receipt capabilities.
- TES-F generated targetable data which was passed digitally to AFATDS, which was linked to a field artillery firing section that conducted numerous live fire missions.

The Army Space Program Office (ASPO) and Bravo Company 319<sup>th</sup> MI Bn met their stated objectives for Fleet Battle Experiment - India. "The experiment was a significant and unqualified success," said the ASPO FBE-I Project Officer, Major (P) Jim Chapman. "The Army and Navy demonstrated significant interoperable network centric capabilities with existing and newly established interfaces between fielded and developmental systems."

## SMDTC establishes Transformation Technology and Concepts Integrated Product Team

The United States Army Space and Missile Defense Technical Center continues to stand "On Point" for technology development.

The Transformation Technology and Concepts Integrated Product Team (TT&C IPT) Charter was signed Sept. 19, by Mr. Jess Granone, executive director of the Space and Missile Defense Technical Center. The Charter empowers Lt. Col. John Oxford, the IPT chairman, to lead the Technical Center's efforts in accomplishing the Transformation mission, goals and objectives, and responsibilities in compliance with the SMDC and Army Transformation campaign plans.

The mission of the TT&C IPT, according to Oxford, is to promote incorporation of Space and missile defense technologies into the Army Transformation Legacy, Interim, and Objective Forces, with priority on the Objective Force.

The Objective Force is the end state of the Army's Transformation and will have the strategic responsiveness, deployability, agility, versatility, lethality, survivability, and sustainability to dominate adversaries across the full spectrum of conflict (peacekeeping operations through high-intensity global warfare). The Objective Force will be an advanced general-purpose land force organized around a common divisional design and will operate as an integral member of a joint, multi-national, and interagency team. The Objective Force will have the strategic deployability of today's light forces and the lethality, survivability, and mobility of today's heavy forces.

A Technical Center Transformation Working Group was established in April 2001 based on the recommendation of the SMDC Technology Board. Since incorpora-



(U.S. Army Photo)

Mr. Jess Granone (seated) gathered (l to r) Dr. Shanmukhan Chiyarath, Col. (R) Jim Cambron, Lt. Col. John Oxford, and Mr. Rodger Qualls for his signing of the IPT charter for Transformation Technology and Concepts.

tion, this group has visited their primary Transformation counterparts in the Office of the Secretary of Defense, the Ballistic Missile Defense Organization, the Army Staff, the Army Materiel Command, the Aviation and Missile Command, and the Program Executive Office for Air and Missile Defense. The IPT's current activities

include compilation of a master list of Transformation candidate technologies for presentation to the Army Transformation Office for review and decision on incorporation into the Army's Transformation Program and operational forces.

A copy of the IPT Charter is located on the SMDC Command Net.

## FOC used in First Air Force exercise

# Battle Lab supports joint exercise

Tactical Operations Centers are changing due to the efforts of the U.S. Army Space and Missile Defense Battle Lab (SMDBL).

An Integrated Product Team (IPT) from the SMDBL Exercises and Training Division in Huntsville, Ala., is developing the Future Operational Capability (FOC) Tactical Operations Center (TOC) to improve the nation's defense.

The North American Air Defense (NORAD) Continental U.S. Region commander began a Cruise Missile Defense Initiative in 1999 to identify shortfalls and propose a near-term solution to defending the United States against low-altitude, small signature threats such as cruise missiles and unmanned aerial vehicles. The Area Cruise Missile Defense (ACMD) Advanced Concept Technology Demonstration (ACTD) is building a mobile tactical interface to take advantage of advanced augmenting sensors and correlate their picture with the existing NORAD air picture. The First Air Force command, which was tasked to manage this ACTD, asked SMDBL to join their team.

The interface comes in the form of a highly mobile command and control shelter and can be deployed to support intelligence cueing or to improve defenses for high visibility events. This shelter is known as the Joint Based Expeditionary Connectivity/Control Center (JBECC). The FOC system, developed by the SMDBL, is filling the role of the JBECC.

The ACMD ACTD is organized into a three-phased building block approach to test these capabilities. The first phase, Demonstration #1 (Exercise AMALGAM VIRGO 2001), focused on sensor integration at the FOC/JBECC and target interception. The second

phase will focus on target destruction in 2002. The third phase will demonstrate the expeditionary capability of the FOC/JBECC.

The SMDBL sent 10 members of its IPT as subject matter experts, and the FOC/JBECC to Tyndall Air Force Base, Fla., this summer for AMALGAM VIRGO 2001. They set up and operated the FOC/JBECC and helped

configure the total system to integrate various radar sensors, intelligence links, and data link systems into the fusion/correlation engine of the FOC/JBECC, Multi-Sensor Correlator Tracker. The demonstration will serve as a baseline for the FOC/JBECC prototype and as a building block for subsequent demonstrations.



(Photo by Jonathan Pierce)

A Future Operational Capability (FOC) shelter at Tyndall AFB, Fla., supported AMALGAM VIRGO 2001, a First Air Force exercise demonstrating the North American Aerospace Defense Command's response to a simulated terrorist cruise missile threat. The FOC, a possible replacement for division tactical operations centers, increases mobility by reducing the footprint and airlift requirements. More importantly, the computers and software being used in the FOC provide a single integrated air picture for joint and combined theater air and missile defense operations. The FOC is being developed by the U.S. Army Space and Missile Defense Battle Lab.

## Launch tests new tactical operation center

by USAF Tech. Sgt. Buzz Ritchie

NORTHERN EDGE 2001 Joint Information Bureau

**ELMENDORF AFB, Alaska** – The inhuman voice was feminine, calm and slow. It ran like electricity through the small room. "Missile alert."

Its lack of emotion gave the computerized message an eerie quality. Human voices in the Future Operational Capability (FOC) cell picked up the message and repeated it twice, this time with urgency and volume.

"Missile alert! Missile alert!"

From a launch facility on Kodiak Island, Alaska, a modified Minuteman II missile carved an arc over the water.

While the missile blasted to the peak of its trajectory, soldiers in a small room on Elmendorf plotted its path. The 263rd Army Air and Missile Defense Command (AAMDC) cell grew quiet as computer operators mapped the missile's likely impact area and marked the launch site as a target for combat units in the air and on the ground.

The launch was the perfect opportunity to test one of the Army's high-tech, space age Future Operational Capability cells developed by the U.S. Army Space and Missile Defense Battle Lab (SMDBL) from Huntsville, Ala., during NORTHERN EDGE 2001, said South Carolina Army National Guardsman Maj. K. Scott Toussaint, a member of the 263rd AAMDC. It's also an excellent learning experience for exercise planners in Alaskan Command (ALCOM), said Lt. Gen. Norman Schwartz, commander of ALCOM.

"The AAMDC scenario during NORTHERN

EDGE taught us a lot about communication links and how we disseminate information," Schwartz said. "I think building theater missile defense into next year's NORTHERN EDGE scenario is an excellent thing to do. Clearly, this is very valuable."

The 263rd AAMDC is here for NORTHERN EDGE for the second year in a row. The National guardsmen comprise one of two Army units that perform theater missile defense. AAMDC cells are conduits for information, channeling data to U.S. and coalition forces, Toussaint explained. The result is an umbrella of safety for coalition troops, equipment and population centers within a specified geographic area, the major added.

The 263rd AAMDC ran their cell from a windowless room inside the building that houses Alaskan Command headquarters. About a dozen computers lined both sides



(U.S. Army Photo)

Kevin Horton (standing right), a member of the SMDBL Integrated Product Team assists members of the 263rd Army Air Missile Defense Command in a train-up at Elmendorf Air Force Base, Alaska, in support of Exercise NORTHERN EDGE 2001.

of the dim room.

Small signs above computer terminals identified the stations: passive defense, active defense, attack operations, current operations, and future operations. Force protection was the cell's mission. It did that using one of the nation's most powerful weapons: information.

"Our cell takes information from air, land, sea and space assets," explained Army Lt. Col. Cortez T. Standard, also a National Guardsman from South Carolina. "We're an information sponge. We soak up information, then squeeze it out." Waiting for information to rain down from the cell was a purple-suit collection of people and equipment.

The NORTHERN EDGE players in the theater missile defense scenario included the SMDBL FOC, Army Patriot batteries, soldiers in Avenger shoot-on-the-move air defense systems using Stinger missiles, Army Special Forces, the Navy's guided missile cruiser *USS Lake Erie*, Air Force E-3 Airborne Warning and Control Systems and F-16 Falcons. NORTHERN EDGE 2001 is an annual training exercise in Alaska providing the nation's military forces an opportunity to improve their combat and peacekeeping skills.

"Because it's a joint force exercise, it has exposed us to the challenges of synchronizing Army, Navy, Air Force, and Space operations. AAMDC needs training exactly like this to enhance our skills for force protection. We have been very fortunate to work directly with the development Integrated Product Team (IPT) from the Huntsville, Ala., Space and Missile Defense Battle Lab to provide inputs for new missile [defense] technology."

**ARSPACE NCOs prove tough****Sergeants tackle jungle course****Staff Sgt. Jimmy D. Little**  
**Okinawa, Japan**

Four noncommissioned officers from Echo Company, 1<sup>st</sup> Satellite Control Battalion, tested their endurance and skills during a jungle warfare training course in late July.

SSG Jimmy Little, SSG Derrick Looney, SGT Timothy Harrell and SGT Darrick Noah of Echo Company joined members of the 1<sup>st</sup> Special Forces Group Signal Detachment and some Marines for a week long run through the jungle at the Marine Corps Jungle Warfare Training Center (JWTC) on the island of Okinawa, Japan.

The JWTC covers 20,000 acres of single and double canopy jungle on the Northern end of the island. The training at the JWTC is designed to enhance the jungle war fighting capability of those who attend.

The four Echo Company NCOs started Monday morning with a day filled with instruction on jungle protection, first aid and communications with an AN/PRC-119. Afterwards a long walk ended at the base of a 100-foot cliff for instruction on rope management, rappelling techniques and two- and three-rope bridge management. Noon found the sergeants learning patrolling techniques and the proper format and dissemination of warning and patrol orders. The sun set on the sweat soaked survivors walking back to their bivouac for a restless sleep.

Tuesday began with an introduction to map reading and jungle land navigation. During a practical jungle land navigation exercise the Army finished ahead of the Marine Corps' finest. Evening found the Echo soldiers receiving instruction on danger areas, patrol bases, and tactical reports. They concluded the day with an introduction to SESAMS, a small arms marking system that fires a 9-millimeter paint round.

Wednesday began with patrolling, and terrain model building and sand table—a new and interesting training technique.

Wednesday evening the Echo Company team, augmented with two junior enlisted soldiers, set the course record for the night land navigation phase of training by finding three out of three points over jungle terrain in less than 26 minutes.

On Thursday, jungle shooting instruction found the Echo NCOs acting as OPFOR (Opposing Force) for the remainder of class 01-6. The small squad, augmented with a Marine NCO, positioned themselves in what the JWTC instructors dubbed "Hotel Cartel," a ramshackle two-story plywood position. Hotel Cartel is the last stop in a series of different scenarios designed to put patrolling techniques to the test. The remaining Marines and the Special Forces soldiers, in squads, moved against this position and tried to wrest it from the entrenched band. The Echo Company sergeants repelled all attacks with such skill the position was renamed Hotel Echo.



Sergeant Darrick Noah climbs through a jungle land navigation exercise obstacle.

Waking, once again, prior to day break on Friday, the Echo marauders received instruction and preparations for Force on Force operations against their Marine counterparts. The Army held their own in the small squad tactics during the force on force while operating out of a patrol base. However, the Marines used their numeric superiority to fend off the Army attacks.



Sergeant Timothy Harrell has his climbing harness checked before negotiating a two-rope crossing during jungle warfare training on the island of Okinawa. Harrell and three other Echo Company, 1<sup>st</sup> Satellite Battalion NCOs tackled the Marine Corps course in late July.

Saturday dawned early on thinner Echo soldiers at the top of a 40-foot hasty rappel, the start of the Jungle Warfare Training Center's Endurance Course. The course is a 3.4-mile trek through 36 jungle obstacles that tests newly developed jungle skills. Participants are required to work as a team to overcome the tough obstacles. After the hasty rappel start, the soldiers crossed a deep ravine using a two- and three-strand rope bridge. The course heads into the deepest jungles of Okinawa where personnel executed more hasty rappels and negotiated several log obstacles and stream crossings. The course then arrived at the "pit and pond" where soldiers and Marines low crawled through muddy, insect infested trenches and underneath barbed wire obstacles, followed by a 600-meter stretcher carry through trenches filled with hip deep mud and over steep, muddy hillsides.

Through debilitating heat, up to 103 degrees wet bulb, humidity and the local wildlife, the Echo sergeants learned the jungle is fearsome but not unconquerable.

**USAKA helps equip Ebeye Public Works****by Jim Bennett**  
**Kwajalein Atoll**

Ebeye Public Works Director Najio Jesse will have more tools to keep the island's utilities online thanks to a Title X program sponsored by the U.S. Army and the Commander in Chief, Pacific.

Jesse unloaded a crate full of tools this month — large wrenches, a carpenter's kit and hydraulic jacks, to name a few.

Asked if he could use them, he replied, "Yes."

"We're always needing tools," said Jack Akeang, Ebeye's acting mayor. "I think we'll be able to put these to good use."

The crates of tools were only a portion of two large Matson containers filled with excess military items from Okinawa given to the Marshallese on Ebeye.

Other items included vehicles, two large trucks and a pair of sports utility vehicles donated earlier this summer and a truck given to Queen of Peace school this month. One crate held dishes that would go to the hospital, said Noda Lojkar, USAKA ombudsman. Another held boxes of surgical tubing. Two refrigerators stood nearby, awaiting delivery to their next homes — probably the hospital, as well.

Another crate held Army boots, mess kits, blankets and cots.

Several crates held a variety of items, along with school desks stacked and packed for maximum efficiency. The desks would go to the public schools where hundreds of children currently have no desks, Akeang said.

One challenge for the donation is figuring the value, said Maj. David Coffey, USAKA chief Host Nation Office.

"A pair of boots is around \$40, alone, and I don't know how many are in there," Coffey said.

Officials conservatively estimated the value in the thousands.

The value for Jesse, who now has tools he needs, and the hundreds of school children, who now have desks, is immeasurable.



Tom Tehgata, left, and Najio Jesse, Ebeye Public Works director, sort through new tools received through a Title X program, sponsored by the Army and the Commander in Chief, Pacific.

(Photo by Jim Bennett)

## FY 2001 in review

# Directed energy programs chief sheds 'light' on laser developments

by Marco Morales  
Huntsville, Ala.

Certain technology development is moving at the speed of light at the U.S. Army Space and Missile Defense Command.

The recent successes in the Tactical High Energy Laser (THEL) program, currently in the developmental, testing and evaluation (DT&E) phase, have paved the way for its follow-on program—the Mobile THEL (MTHEL).

The initial objective for the THEL demonstrator, once all of the DT&E had been accomplished, was that it would have been delivered to the Government of Israel to help protect its northern borders from Katyusha rockets launched by terrorists.

Israel, however, has decided to continue developing the THEL into its next phase in a combined Advanced Concept Technology Development program with the U.S. Army.

"Right now, the current THEL sits on a concrete pad," said Richard Bradshaw, director, Directed Energy Technology Program Office, Space and Missile Defense Technical Center. "It can be transported only by shipping it in containers mounted on several tractor-trailers."

"We've initiated an MTHEL study which involves 'shrinking' the THEL demonstrator from its current size to a factor of five and putting it on a mobile platform," Bradshaw said. "The idea is so that troops in a theater environment can move it around on a large truck."

Bradshaw said the program has congressional support.

The THEL program has had a great deal of success. To date, a total of 23 Katyusha rockets have been shot down in both single-rocket shutdown and multiple-rocket shutdown tests conducted last summer through early spring this year at White Sands Missile Range, N.M.

"Everyone who has seen what the THEL can do has been impressed with it. Again, it's a demonstrator. It's not everything we want but it's a nice step," Bradshaw said.

Bradshaw's responsibilities include other directed energy initiatives such as the Solid State Laser program.

"Just recently this year, we tested a 10-

kilowatt laser which as of today is the most powerful solid state laser in the world," he said. Bradshaw noted he hopes the laser program can develop a 100-kilowatt solid state laser in the lab.

Lasers of the future are projected to have more power.

"Right now I feel very comfortable that we'll be able to get to the 100-kilowatt range with the solid state heat capacity laser," Bradshaw said.

But Bradshaw said the solid state laser program has obstacles.

"The problem is that flash-lamps are extremely inefficient. You get maybe one percent laser energy and the rest of it is just waste heat. So, we're dumping that kind of heat into the same disk," Bradshaw said. "When we go to the diode pump we expect to get a factor of 10 improved efficiency. Which means that essentially you've got the same number of disks in it except that it is pumped with diodes."

Bradshaw added the Air Force is harnessing fiber laser technology which also has its challenges.

"The fiber laser is being pursued by the Air Force and we're monitoring that program," he said. "The problem with fibers is that you're basically having to bring together the output of those fibers and match them all up so that you get one coherent laser beam and that's a challenge. No one has achieved in that type of device the comparable power we have in heat capacity lasers," Bradshaw said.

Bradshaw said the use of more powerful lasers will depend on mission requirements.

"The 100-kilowatt laser is the type of power level we will need to develop an effective defensive weapon in the directed energy arena. We may need to go to a higher kilowatt level than that. It depends on the target. Different targets have different hardness levels," he said.

"Because it's a heat capacity laser we have to cool it. We have to make sure that we can roll this thing up to the operational timelines that we're interested in. So, it's a demonstration of the power at this level in the lab and there are still some systems issues that we'd have to work out as we try to integrate



The Advanced Tactical Laser is one of several directed energy programs being developed by SMDC.

into an actual weapon," he said.

Bradshaw said that waste heat remains another challenge in harnessing the right technology in directed energy.

"On any of these types of lasers you've got a certain percentage of power that you're converting to lasing power and then you have a big chunk of energy you have to dump as waste heat," Bradshaw said.

"On electrically generated lasers waste heat is always a problem in removing the heat from the process. There are technology solutions and whether we build them or not is in the program's objective. In some cases we haven't built these solutions so we engineer them to show that it can be achieved," he said.

"The biggest challenge today is getting to demonstrate the types of power—in the 100 kilowatt range, for example—with solid state lasers that nobody else has been able to do," Bradshaw said, adding, "Once we get to that level we then look at what deficiencies are associated with that development. And when we get to testing a laser that puts out high levels of energy, is the laser going to operate at the beam quality and timeframe that we need?"

"Of course it doesn't do us any good to build a laser that's going to be used for welding or other uses close up. It has to be projected down range, it has to hold up, and it has to be a good quality beam," he said.

Bradshaw explained how the laser weapon developed from the THEL will benefit future systems.

"The pointer-tracker is like the barrel of a gun and the laser is like the bullet. All of the technology of aiming and putting the beam on target, making sure we're shooting at the right target, came from tests conducted with the THEL program. So, we don't have to re-invent the wheel in developing a solid state laser system."

"It's exciting because one of the problems we're always working toward in the Army is developing future combat systems and one of the main drivers in this development is to reduce the logistics tail that a new system requires," Bradshaw said.

"The nice thing about a solid state laser is that you essentially regenerate your 'bullets' in the field. The warfighter will have to haul some additional diesel fuel because what you're doing is using the diesel to recharge the battery to generate the electricity needed for the laser," he said.

"From the perspective that on a battlefield, I'm firing photons at an enemy target, using lasers makes a lot of sense. Hauling around a bunch of expensive missiles in the battlefield is counterproductive because once you launch them, you've exhausted your defensive capability," Bradshaw said, adding, "The other advantage is that you can engage enemy targets at the speed of light. Some targets that are soft can be disabled in a very short period of time. Others which may be of harder substance can take longer. But a laser allows the warfighter to very quickly engage the target."



This is a conceptual image of what a tactical ground vehicle would look like using a solid-state laser capability.

# FY 2001 in review

## Developing tools for situational awareness

As technological advances make the battlespace more lethal the operational tempo of future warfare will greatly increase. Tactical commanders will need real-time/near-real-time information to have situational awareness and enhance their ability to take quick, decisive action in combat.

The continued development of information technologies will substantially change the future conduct of military operations by enhancing combat effectiveness, reducing casualties, and protecting the force.

The capability to collect, process, and disseminate an uninterrupted flow of information to the commander will be paramount to future military success.

A key element to this information process is the wide range of sensors deployed in space, in the air and on the ground, gathering information to provide our military with the information advantage.

Sensors serve one of three basic functions, (1) threat warning or detection of hostile weapons systems, (2) surveillance and detection or the tracking of all targets within a general area, and (3) fire control or acquiring, tracking and engaging targets.

The data generated by knowledge-based computer systems can be combined and correlated in seconds to provide commanders with a near-real-time, common, accurate picture of the battlefield. This process known as "multisensor fusion" will revolutionize future warfare.

The SMDC Sensors Directorate is developing advanced components, processing, and multisensor fusion capabilities for the warfighter. Descriptions of three of the more promising sensor programs follow.

### Space Based Soldier System

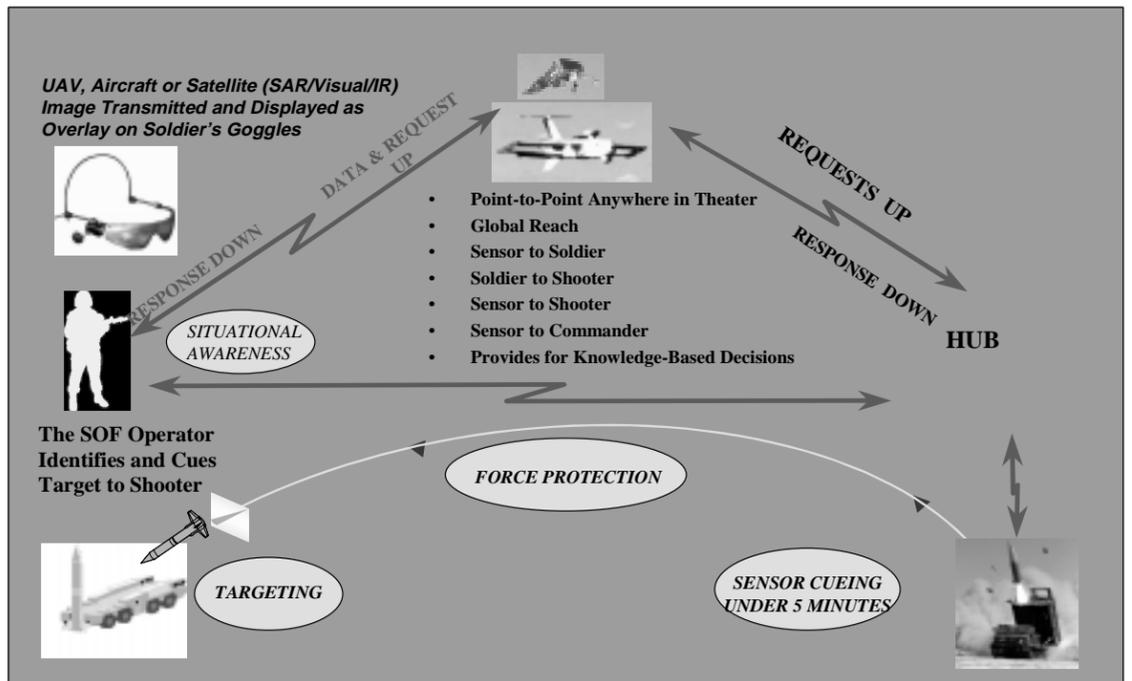
In the future, the force that holds the advantage in situational awareness will likely control the tactical and operational tempo of the battle and maintain the initiative.

SMDC is dedicated to achieving a "sensor to foxhole" capability so the warfighter will maintain information superiority. The Space Based Soldier System (SBSS) promises to make this concept a reality.

SBSS envisions individual Special Forces soldiers, on or beyond the FEBA, being equipped with a weapon-mounted IR sensor (camera) that displays the image to a set of goggles worn by the soldier.

The image provides situational awareness, through thermal sensitive imagery, of the location and activity of enemy soldiers and equipment.

The soldier is also able to receive data from space-based sensors, through a situational display on these same goggles, about the situation "over the next rise" or in adjacent areas that are unable to be reconnoitered on the ground.



A ground-based "fusion hub" is able to provide "reachback" capability for weather, terrain products, imagery or pertinent intelligence products directly to the forward deployed Special Forces soldier.

Additionally, the soldier is able to report simultaneously, via satellite communications, to multiple echelons in the rear, his interpretation of the current situation.

### Project Hercules

Project Hercules is a national effort to develop robust adaptive algorithms to counter unusual and evolving threats.

An algorithm is a definite procedure for solving a problem using a finite number of steps.

Critical tracking, discrimination, aim point selection, and kill assessment algorithms that act according to observed target phenomenology provide the "brains" that allow sensors associated with Theater Missile Defense (TMD) and National Missile Defense (NMD) weapons systems to achieve the high confidence needed to engage and defeat emerging threats and remain dominant in tomorrow's battlespace.

Development of smart algorithms for the battlespace is extremely cost efficient, returning hundreds of millions, if not billions, of dollars for an investment of tens of millions of dollars.

### High Altitude Observatory Upgrade

The HALO Upgrade is the follow-on or improved version of the High Altitude Observatory/Infrared Instrumentation System (HALO/IRIS). HALO/IRIS supports the warfighter through the collection of infrared, visible, and ultraviolet broadband and spectral data that is directly applicable to weapon systems development programs.

It provides high quality, radiometric,

three color, simultaneous IR data and visible photo-documentation at high frame rates.

The HALO aircraft, a Gulfstream IIB, operates above 45,000 feet with host multisensor data collection platforms. It has been substantially modified to carry three optical sensor suites.

Two of these platforms, designated Alpha and Beta, are multiconfigurable to carry a wide assortment of sensors spanning the ultraviolet (UV), visible, and IR spectrums.

The third sensor platform contains the IRIS sensor suite that is the primary infrared sensor aboard the HALO. It is a three-color, staring, high frame rate, imaging system that collects data simultaneously across the short-, mid- and long-wave infrared bands.

Although the HALO/IRIS has a legacy of being a reliable data collection asset, the asset, while relatively economical, has limited data collection capabilities.

The HALO Upgrade alleviates these problems by installing a pod on top of the fuselage. Moving the sensor package outside the fuselage offers many other advantages, such as using cold ambient temperature, relieving space constraints inside the cabin, and the ability to track from either side of an aircraft with extreme sensitivity and stability.

The prime objective of the HALO Upgrade is to obtain visible and IR imagery and multispectral data on missile systems during testing.

The collected data will be used in the design and validation of Ballistic Missile Defense systems performance, discrimination technology programs and threat predictive models.

The approach chosen to deal with the system swapout is a concerted effort in systems integration, including a surrogate Gulfstream aircraft.

While the HALO/IRIS remains operational, the surrogate will be used during the ground-test phase to perform as many systems tests and performance measurements as possible in a ground-test mode. This will ensure that the ground-test phase of the actual HALO aircraft is minimized, and that most of the air frame integration issues (e.g. cable lengths and ergonomics) will be addressed without impacting HALO/IRIS mission support.



HALO/IRIS configuration of the Gulfstream IIB is shown above, an artist's drawing of the HALO Upgrade (right) displays the aircraft's external sensor pod.



## FY 2001 in review

# Forrester takes rookie space flight

His rookie space flight was memorable in many ways for Astronaut Patrick Forrester, an Army lieutenant colonel assigned to the Army Astronaut Detachment, U.S. Army Space Command. Forrester, a mission specialist aboard the Space Shuttle *Discovery*, opened the hatch between *Discovery* and the *International Space Station* on Aug. 12 and greeted the man who was instrumental in bringing him to NASA, retired Army Col. James Voss. Voss had been aboard the space station for more than 168 days.

Forrester, part of a four-man crew, delivered 7,000 pounds of supplies, food, and science experiments to the space station. The shuttle also delivered the Expedition Three crew who will spend the next several months on the space station. Voss, a flight engineer with the Expedition Two crew, arrived at the space station March 9 to study the human body in space, space radiation, observations of the Earth, crystal growth in weightlessness and plant growth in space.

While the shuttle was docked at the space station, Forrester and another mission specialist, Dan Barry, performed two space walks.

Before his flight, Forrester spoke about the mission and his mentor.

"As a rookie, I just can't imagine what it's

going to be like to go to Space the first time. It's a unique opportunity because one of the Expedition crewmembers, Jim Voss, was instrumental in bringing me down here. Eight years ago, when I came to work at Houston as an engineer before being selected as an astronaut he was my boss. I owe a lot to him, just the fact that I was selected. If you'd told me eight years ago that I would eventually be on the shuttle, going up to bring him back from his stay on the space station, I just couldn't have imagined it."

Forrester grew up in an Army family and went to West Point after high school. He was commissioned as an infantry officer and was an airborne Ranger. He says he learned early on where his real interests were after spending several days in the mountains with little food and not a lot of sleep. A helicopter picked him up.

"I looked up front because he [the pilot] was up there eating fried chicken. I decided right then that's what I wanted to do. I wanted to learn to fly. So, I spent the rest of my military career flying."

While in Hawaii, Forrester read about an Army aviator who was also an astronaut.

"I'd always been interested in the Space program, but I wanted to be in the Army and be



an Army officer. For the first time I realized I could do two things that I love—serve my country in the military and perhaps become an astronaut. Probably about 11 years and five applications later I was finally selected in 1996."

In addition to Forrester, there are four other active-duty Army astronauts: Lt. Col. Jeff Williams, Lt. Col. Nancy Currie, Lt. Col. Tim Creamer, Lt. Col. Doug Wheelock and an astronaut candidate, Maj. Timothy Kopra.

# Voss joins International Space Station's crew

A former member of the U.S. Army Space and Missile Defense Command's Astronaut Detachment spent four months living aboard the *International Space Station* (ISS).

Army Colonel (Ret.) James S. Voss, a NASA astronaut, was a member of the second crew of the ISS who left Earth March 8 aboard the Space Shuttle *Discovery*.

Voss, with crew member, Susan J. Helms and ISS commander, Yuri V. Usachev took up residence with Usachev serving as the first Russian commander of the ISS.

*Discovery* delivered the Italian-built "Leonardo" Multipurpose Logistics Module. Leonardo is the first of three logistics modules that will serve as pressurized moving vans, bringing equipment and supplies to the space station.

Upon docking with the ISS Voss and Helms conducted the

longest spacewalk to date relocating a docking port attached to the ISS Unity module. The docking port was used to connect Leonardo to the ISS.

After Leonardo was attached to the ISS, the crew began transferring systems racks to the U.S. laboratory *Destiny*. Voss and Helms will use the first science racks aboard *Destiny* to perform experiments at the ISS.

Voss was born in Alabama and considers Opelika to be his hometown. He married the former Suzan Curry of Birmingham, Ala., and they have one daughter. He enjoys woodworking, skiing, softball, racquetball, scuba diving, and flying an airplane he built.

Graduating from Auburn University, Voss was commissioned as second lieutenant in the infantry. He immediately attended the University of Colorado and earned a masters de-

gree in aerospace engineering sciences.

A graduate of the Infantry Basic Course, as well as Airborne and Ranger schools, he served as a platoon leader, intelligence staff officer, and company commander in the 2nd Battalion, 48th Infantry in Germany.

During his military career he taught at the U.S. Military Academy in the Department of Mechanics. After attending the U.S. Naval Test Pilot School and the Armed Forces Staff College, Voss was assigned to the U.S. Army Aviation Engineering Flight Activity as a Flight Test Engineer/Research and Development coordinator. He was involved in several major flight test projects before being detailed to NASA.

While assigned to the Lyndon B. Johnson Space Center he supported shuttle and payload testing. Selected as an as-



tronaut candidate in 1987 he qualified for assignments as a mission specialist for space shuttle flights.

Voss has made four previous shuttle flights into space in 1991, 1992, 1995, and 2000.

# Storm II target system has successful flight

A Storm II target system, developed by the U.S. Army Space and Missile Defense Command (SMDC) for the Ballistic Missile Defense Organization (BMDO), successfully flew at White Sands Missile Range (WSMR), N.M., in support of the PATRIOT Advanced Capability-3 (PAC-3), Developmental Test 6a (DT-6a) flight test Oct. 14, 2000.

The Storm II is a tactical ballistic missile target typically used for test and evaluation of BMDO interceptor systems. The Storm II target flown was a single stage configuration including an SR-19 booster and a Maneuvering Tactical Target Vehicle

(MTTV) reentry vehicle. The MTTV, a modified Pershing II reentry vehicle, includes the Guidance and Control (G&C), Payload, and Radar sections. The MTTV Radar and G&C sections were modified to emulate the radar cross section signature characteristics of the defined threat for this mission.

The Storm II target was flown from Launch Complex 96 at Fort Wingate, N.M., on a 141 degree (northeast to southeast) flight azimuth to WSMR to support an endoatmospheric intercept of the separated MTTV reentry vehicle by the PAC-3 system. The trajectory reached an apogee altitude

of 104.7 kilometers and covered a ground range of 347 kilometers. The time of flight was 330 seconds. During the Boost phase, the SR-19 Thrust Vector Control nozzle provided the pitch and yaw control. The Pershing II Vane Control System was used to provide target roll control from launch plus 18 seconds through plus 50 seconds when the SR-19 Hot Gas Roll Control System was utilized. The SR-19 burned out at approximately launch plus 65 seconds followed by a successful separation of the MTTV reentry vehicle, second object deployment, and subsequent presentation at the altitude of interest,

within the specified parameters. The MTTV reentry vehicle carried an instrumented submunition payload for this flight.

Prime contractor for the Storm II targets program is Orbital Sciences Corporation of Chandler, Ariz., supported by principal subcontractors Aerotherm Corporation of Mountain View, Calif., and ITT Systems and Sciences of Colorado Springs, Colo. The Space and Missile Systems Center of the U.S. Air Force provides the booster motor.

At SMDC, the program is managed by Lt. Col. Christopher W. Little, Ballistic Missile Targets Joint Project Office.

## FY 2001 in review

# Army astronaut soars on *Discovery*

by **DJ Montoya**  
**Colorado Springs, Colo.**  
 Photos courtesy of NASA

"I have to tell you, being in space is just a thrill," said Col. William S. McArthur Jr., U.S. Army Space Command's senior astronaut, recounting his role on board STS-92.

McArthur, as Mission Specialist 2, was one of a seven-member crew which included: Col., USAF, Brian Duffy; Lt. Col., USAF, Pam Melroy; Cmd. (USN) Michael E. Lopez-Alegria; Leroy Chiao; Peter J.K. "Jeff" Wisoff; and Koichi Wakata.

During the 12-day shuttle mission, a \$273 million structural truss and a \$20 million shuttle docking port were installed on the International Space Station. These two major components increased the mass of the ISS by about 10 tons to a total of about 80 tons.

By all accounts, the 100th space shuttle mission STS-92 was a success despite a number of hurdles both before launch, which was delayed four times, and just before landing when bad weather forced the shuttle to touch down at Edwards Air Force Base, Calif. There was also the loss of Discovery's Ku satellite dish during the first full day of the mission resulting in no live video feeds throughout the flight.

The highlight for this third time veteran of the shuttle was his first of two space walks during the mission with partner civilian Mission Specialist 1 Chiao. Together they spent over six hours making various connections on the Z1 truss, setting up two communications antenna assemblies and installing a toolbox for future construction.

"Somebody accused us on this flight of being very greedy," said McArthur jokingly. "This was my first opportunity to do any space walks. And, by golly, each team got to do two of them so we have no complaints."

Looking back on the accomplishments of the 12-day mission, McArthur pointed to the importance of the crew's work.

"We've got a fantastic fledgling outpost in space now, but it is time to turn it into something much more than that."

"There are two really key things about living in space. Things that you just really have to plan around. You have to be able to provide power and you have to be able to communicate."

According to McArthur, the biggest challenge for the crew was getting to know this unique ISS hardware, insuring that it has been integrated properly into the shuttle and understanding how it interfaces into the rest of the space station.

Looking back on the completed work involving the ISS McArthur compared it to a race.

"It is almost like you've been preparing for a big race. Everyone has been working hard getting to the starting line. The starter's gun goes off and then we finally get to the business at hand."

"We're all cheering for Bill Shepard, Sergei Krikalev, and Yuri Gidzenko. We couldn't wait for them to get up here. And by golly our chests swelled with pride when they arrived up there and we know the laboratory and station that they're working in is something that we had a little hand in building."

He stressed that one of the things that the ISS crew will find different when they arrive is the ease of adapting to living in space and a normal work environment.

"I think what they (the ISS crew) are going to enjoy the most is that over a long duration you can really physically adapt to zero G."

"Here on an 12-day shuttle mission when we get through a physical adaptation for a few days we work at a pretty intense pace because we are trying to accomplish so much in such a short period of time. I think they are going to like the sense they aren't visiting space—they are living in space."

"And the ground control has an opportunity to look a week or two weeks ahead instead of trying to preplan everything for tomorrow. So I think the sense you're in a normal work environment is something they are going to really enjoy."

When summing up this mission and his third venture into space McArthur's quote during his first space walk on Oct. 16 says it all, "This is too cool!"



Astronaut William (Bill) McArthur, appears suspended over the Earth during a space walk near the longerons of the Space Shuttle *Discovery*.



From left, astronauts Pamela Melroy, pilot; Koichi Wakata, mission specialist representing Japan's National Space Development Agency (NASDA); and William McArthur, mission specialist, team up for some inflight maintenance on a temporarily extracted part of a flight deck panel. They were part of the seven-member Space Shuttle *Discovery* crew from Oct. 11 - 26, 2000.

## When astronauts soar, families also go to Space

by **Rhonda Paige**  
**Arlington, Va.**

When her husband announced another Army deployment, Anna-Marie Williams was surprised at the distance. Lt. Col. Jeffrey Williams was about to be launched into Space.

An Army spouse for nearly 21 years, Anna-Marie has handled her share of deployments. Yet her role as the wife of an Army astronaut was fairly new. Jeff had been in the astronaut program for only about five years in November 1999, when the National Aeronautics and Space Administration (NASA) notified him of his selection for a mission. Jeff, Anna-Marie, and their two teenage sons, Brad and Jason were certainly

excited, but no one realized a Space flight would soon follow.

"Normally, there is a least a one-year training and waiting period between notification and launch," Anna-Marie explained. Seven months later, in May 2000, Jeff was having his first Space walk as part of the seven-member Space Shuttle *Atlantis* crew. The crew transported and installed more than 5,000 pounds of critical equipment and supplies.

When the family saw *Atlantis* liftoff with Jeff onboard, Anna-Marie said to her boys: "There goes dad on his dream." *Atlantis* safely touched down after 2 a.m. May 29, 2000. The family was reunited by 6 a.m.

"Seeing the orbiter for the first time and

being that close was a little scary," said Anna-Marie. She also said the entire family felt another emotion during the launch: pride.

Supporting her husband's career and being a mom to two teenage boys are both rewarding, but Anna-Marie also works as a "Welcoming Neighbor" for a local Houston-area company. She also makes time to stay involved in many community activities, including her church, and SMDC's Army Family Action Plan (AFAP) group.

"My roles as an Army spouse and an astronaut spouse are both positive and challenging, and that's because Jeff and I do such a great job of supporting each other," she said.

# Bringing Space to the

## *Space soldiers serving soldier Space needs*

by Dan Coberly  
Huntsville, Ala.

If a sneak attack like Pearl Harbor ever happens in Space, it could be the day the Earth stands still for America and its allies.

Space satellites might take a licking and keep on ticking. If they don't, life could get chaotic on the planet Earth.

Millions of people would suddenly learn how much they personally rely upon Space technology. Cellular phones, credit cards, debit cards, ATM cards, e-mail, and personal data assistants might as well not exist. Banking, shipping, telemedicine care and other speedy electronic commerce could be interrupted worldwide. We'd return to the golden days of radio. And not much else.

Soldiers on the ground and pilots in the sky would find the situation a lot more serious. Invisible beams of information used by Global Positioning Systems (GPS), weather reports, and communications would vanish. At that moment, we could lose much of our early capability for spotting missile launches aimed at our nation.

Citizens and soldiers alike tend to appreciate advance warning that a SCUD or a cruise missile is heading their way. Aspiring artillerymen aim for their rounds to land on intended targets. Inquiring infantrymen want to know exactly where they are, where their buddies are, and where the enemy is lurking on the battlefield. To them, the ultimate computer crash would be more than just frustrating. It would be deadly.

The U.S. Army Space and Missile Defense Command (SMDC) has eyes in the sky and feet on the ground to make sure something like "Space Harbor" never happens.

As one of the Army's 15 major commands, SMDC's soldiers are keenly aware that Space has extended the boundaries of future

battlefields. SMDC serves as the Army's advocate for Space and missile defense and is the Army's integrator for theater missile defense. The Space and Missile Defense Command also helps Army warfighters gain access to Space assets and products. The command maintains the Army's portion of what is fast becoming a vital missile defense program used to protect the nation and our allies. The Army is the lead for land-based missile defense systems. Thus far, the Army is the only military service to achieve real-world success with hit-to-kill missile technology, scoring a "GO" in 11 out of 14 recent attempts.

Today, some of what SMDC's "Space" soldiers now accomplish for our ground forces has a hint of what the Starship *Enterprise* has portrayed for us on television since the 1960s. Young Army Space specialists and noncommissioned officers already control satellite payloads, warn of impending missile launches, and maintain vital Space communications. A small cadre of new Space Operations officers (FA 40) are joining headquarters and battle staffs as Space Liaison officers. Soon, they may help other soldiers use lasers and sensors or other Space-based technology to accomplish missions that only a few years ago were in the make-believe world of Hollywood's Star Fleet officers.

Warfare is forever changing. The Army forever adapts, or takes the point and leads the change. The current trend in warfare is to fight at a distance; to attack and to defend at a distance. If the soldiers and civilians at SMDC have their way, infantrymen will use Space technology to become a more effective fighting force to be able to do just that.

SMDC's soldiers see Space as the high ground for terrestrial success, not just the final frontier. To them, Space holds as much promise as it does danger.

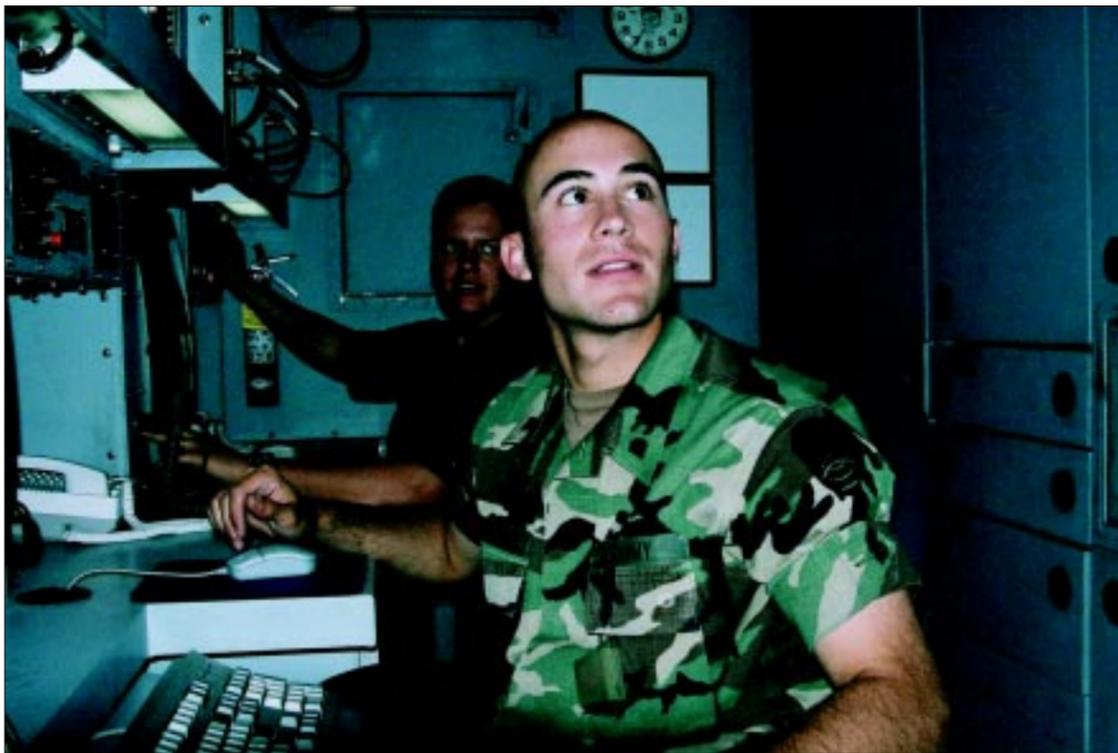


Specialist Brandon S. Krumwiede (left) and Sgt. Dennis Shay (right) work on the Joint Tactical Ground Station (JTAGS) in Colorado Springs, Colo. The JTAGS is used to detect and track theater missile threats for deployed commanders-in-chief and the joint force.



Sergeant Frederick Mack, Theater Missile Support Company, 1st Space Battalion, sets up a Joint Tactical Ground Station at Colorado Springs.

(Right) Sgt. Melissa E. Copeland, Company B, 1st Satellite Control (SATCON) Battalion at Fort Meade, Md., monitors and analyzes the signals passing through the Defense Satellite Control System satellite. SATCON soldiers look for proper bandwidth allocation, spectral shape, and power requirements to ensure that the user requirements are adequate for a successful mission, while ensuring that the health and welfare of the satellite are met.



(Photo by Dan Coberly)

Sergeant Dennis Shay (rear) and Spec. Brandon S. Krumwiede (front), both from the Theater Missile Warning Company, 1st Space Battalion, verify settings on a Joint Tactical Ground Station unit.

**FY 2001 in review**

# Army



(Photo by Dan Coberly)

... align a TACSTAR antenna during set up of a Joint TAGS detachments provide in theater warnings of joint forces under their command.



(Photo by DJ Montoya)

... Space Battalion, shoulders a shelter support post as ... s, Colo.



(Photo by Keith A. Ramsey)



(Photo by Dan Coberly)

Specialist Keith Barnhart, HHC, 1st Satellite Control Battalion, uses specialized test equipment to check satellite communications equipment for proper operation.

## Commander touts soldiers' skills

"If you depend so much on Space, you are going to have to protect your Space assets so the enemy can't take them away from you," said Col. William J. Partridge, commander, Army Space Forces, Army Space Command, U.S. Army Space and Missile Defense Command.

"Ensuring that we have the ability to access all the information that our forces need to get from Space, and having the potential to deny the enemy from having the same access is a mission with a future here at the Army Space Command."

Partridge commands a growing brigade-sized unit charged with providing day-to-day Space support for the Army. His Space forces include three unique battalions, the 1<sup>st</sup> Satellite Control (SATCON) Battalion; the 1<sup>st</sup> Space Battalion, and a new National Guard unit, the 193<sup>rd</sup> Space Support Battalion. A NASA Astronaut Detachment and a Headquarters and Headquarters Company round out the unit. Several Army astronauts have orbited Earth aboard the *International Space Station*.

Everyday, soldiers involved in peacekeeping operations and exercises probably don't realize they are using Space and Space technology information provided by the Army's Space forces.

That's because units like the 1<sup>st</sup> SATCON silently do their job in the background, controlling satellite payloads and networks using the Defense Satellite Communications System (DSCS).

"It's impressive when you visit the centers and see privates, privates first class and specialists,

with a sergeant or staff sergeant in charge, performing very high-tech functions," Partridge said. "Our young soldiers are located around the world from Japan to California, from Colorado Springs to Germany and they are supporting DoD users, not just the Army."

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**'We are always there, watching the sky, so the rest of the Army can get its job done a lot quicker and safer'**

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-- Sgt. Dennis Shay

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According to Partridge, the Army's use of the Global Positioning System (GPS) began when the Army applied a Space-based navigation system that the Air Force was developing for their pilots.

It was fielded initially to Army units during the Gulf War and now it's there and the Army accepts it as always being there. It's also now a \$3 trillion a year business around the world. And it was an Army guy, pulling together segments of warfighter utility that made it happen. That's the

See 'soldiers' page 24

## FY 2001 in review

# Exoatmospheric Kill Vehicle pulverizes target in IFT-6



(Photo at right) From left, Boeing executive Jim Evatt, Maj. Gen. Willie B. Nance Jr., program executive officer and system program director, National Missile Defense, BMDO, and Brig. Gen. John M. Urias, deputy commanding general for Acquisition, USASMDC, discuss mission issues before Integrated Flight Test-6 which included an ICBM test target from Vandenberg AFB and an exoatmospheric interceptor missile from the Reagan Test Site at Kwajalein Atoll.

by **Jim Bennett and Jonathan Pierce**  
Kwajalein Atoll and Huntsville, Ala.

The missile defense community scored a hit July 14<sup>th</sup> when an exoatmospheric interceptor proved the "hit-to-kill" technology by destroying an ICBM reentry target over the Pacific Ocean.

The U.S. Army Space and Missile Defense Command (SMDC) played key roles in the successful missile defense test conducted by the Ballistic Missile Defense Organization (BMDO).

The Ballistic Missile Targets Joint Project Office provided the modified Minuteman II ICBM, reentry target, and decoy that was launched from Vandenberg AFB, Calif. Sensors at SMDC's Ronald Reagan Ballistic Missile Defense Test Site at Kwajalein Atoll (RTS) tracked the target and the interceptor was launched from the RTS.

Air Force Lt. Gen. Ronald Kadish, director of the BMDO, said, "The early indication we have is everything worked." He noted, however, that there was a tremendous amount of data to analyze, and that some sub-systems may not have functioned precisely as planned even though the test was successful.

He also said that the frequency of tests will increase, including as many as six in the next 18 months.

Jerry Cornell, the Boeing site manager, said the stepped-up testing schedule will not require more personnel living on Kwajalein, but will result in more numerous visits by the 315 or so TDY personnel who attended Sunday's launch.

Interest in the test was high with 38 video teleconferencing centers across the United States showcasing the event for military, government and media. More than 10 centers in the Washington D.C. area, alone, featured video from the launches and control rooms.

## An Early Start

Mission day opened with an early morning boat ride from Kwajalein to Meck. More than 200 staff, visitors and locals, crowded on the catamaran *Jelang-K* in the predawn around 6 a.m. As the boat passed Little Bustard, the sun rose over the ocean and a rainbow shone over Carlson Island, across the lagoon. It was a good omen, as a rainbow had lit up Meck prior to the successful IFT-3 mission in October 1999.

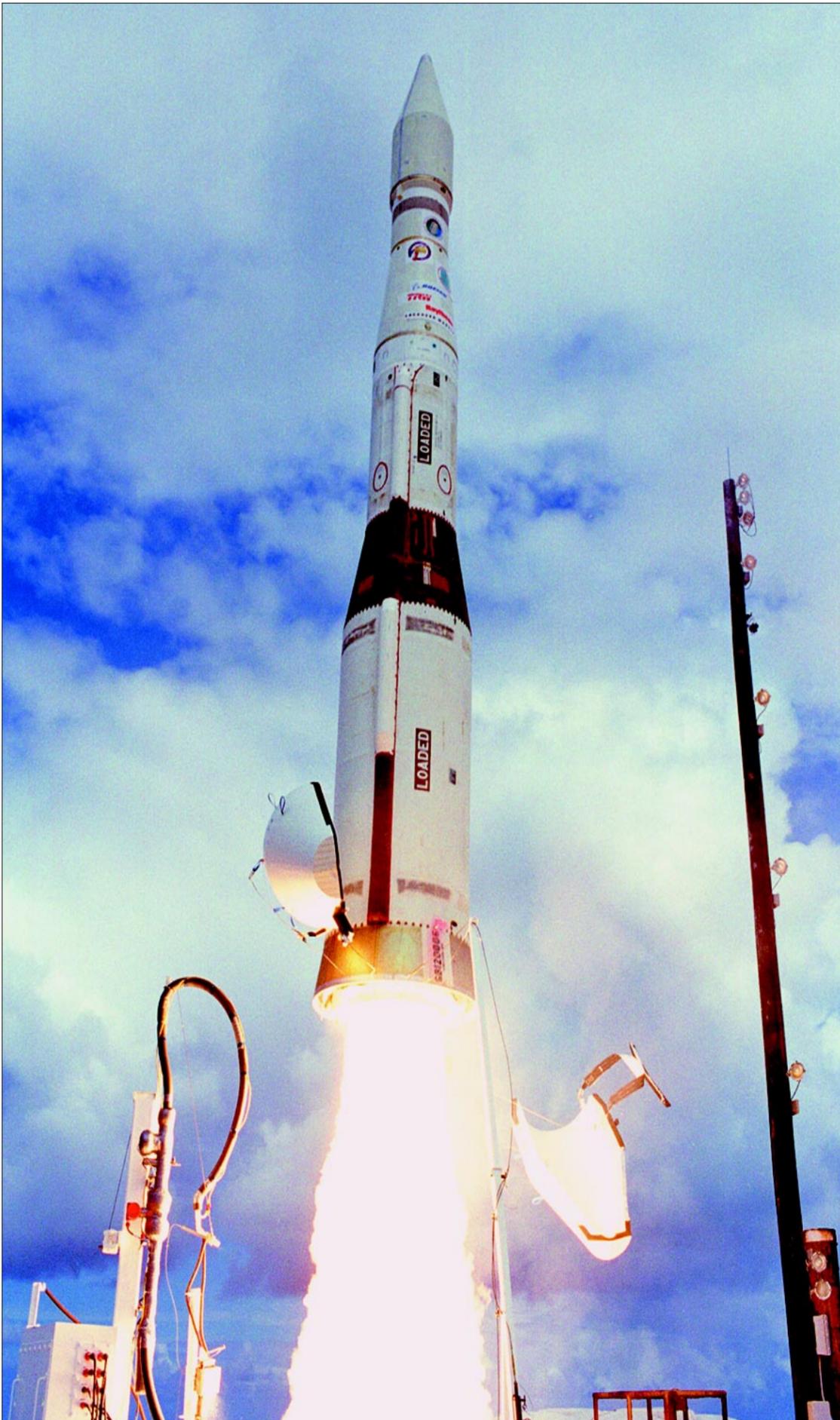
Dressed in matching shirts, various groups gathered on the upper deck and in the two large cabins. Battle Management Command, Control and Communications team members dressed down in blue aloha shirts. Raytheon EKV and Boeing mission personnel wore golf shirts. Lockheed Martin staff sported baseball jerseys.

"Everybody has their thing," said Fred Lackey. Lackey has worked with numerous missions. He currently serves as a public affairs specialist for the NMD program.

"You won't see red, though," he said.

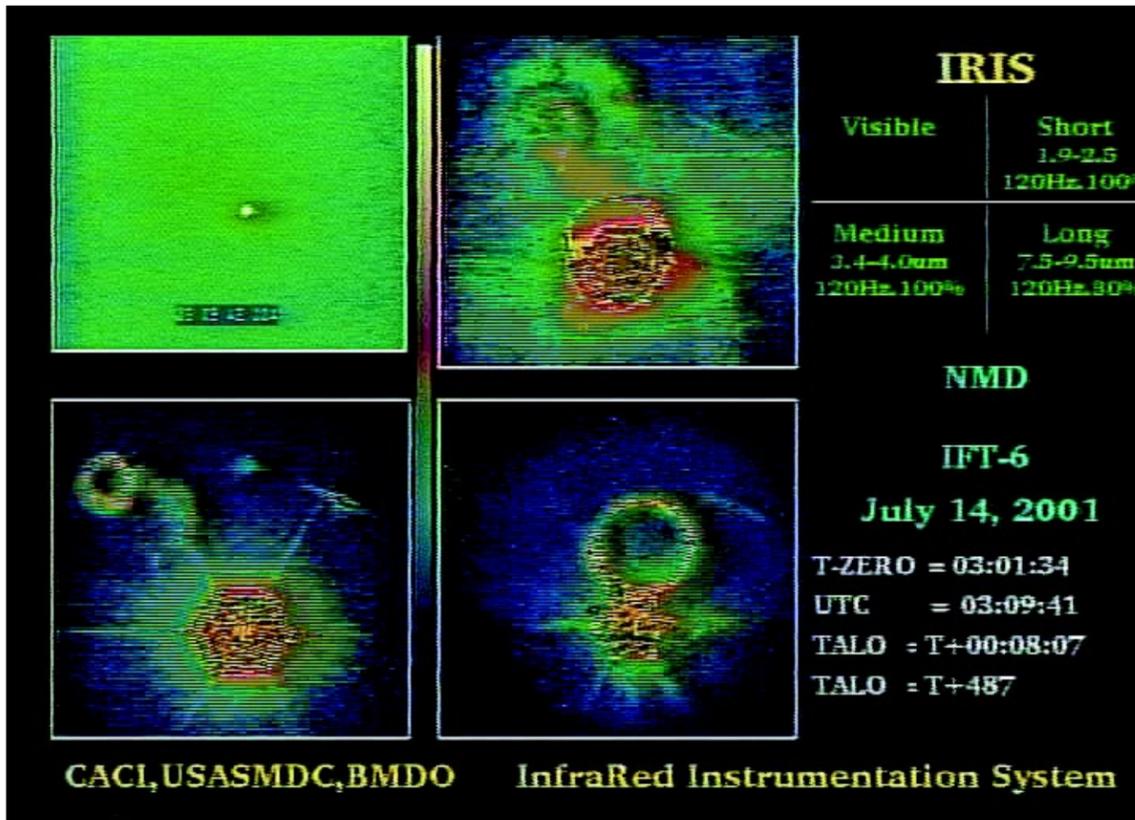
One group had worn red T-shirts during IFT-5, defying conventional superstition. For this mission, four of them had placed those red shirts below the interceptor in an attempt to burn them.

The teams seemed in good spirits Sunday morning [it was Sunday on Kwajalein but Saturday in the States] with quiet jokes and



The ground-based 120-pound exoatmospheric interceptor, launched atop a missile from Meck Island, Kwajalein Atoll, found its target 144 miles into outer space, at 8:09 p.m. PDT, on July 15, and pulverized it in an exploding flash of light. The target missile, from the USASMDC's Ballistic Missile Targets Joint Project Office, was launched about 7:40 p.m. from Vandenberg Air Force Base, Calif.

# FY 2001 in review



(Image courtesy of Boeing)



(Image at left) An infrared instrumentation system at the mission control center is used to view the actual hit-to-kill impact during the test. (above) Bradley Graham interviews Maj. Gen. Willie B. Nance Jr., before Sunday's launch.

conversations passed about the boat. Some wondered out loud what protests might accompany the mission. But no one seemed unsure of the mission.

"There was a lot of confidence," said Mission Director Kenny Ivey. "We were going to have a success."

And yet, underneath all the confidence, Ivey said the team recognized the need to make an intercept after two failed attempts. The last successful hit had come in October 1999 during IFT-3. The last test, IFT-5, was in July 2000.

"There was more tension, more stress [than IFT-5]," Ivey said. "There was a lot of external pressure for the program. The program needed this success. And there was internal pressure for ourselves. This is what we live for."

Despite the pressure, preparations for IFT-6 seemed to go more smoothly than the past two missions, according to John Fratangelo, chief scientist for the independent assessment team.

"We didn't have the issues [on IFT-6]," Fratangelo said. "On the last two, we had something right down to the last day."

Fratangelo has worked on missile programs for more than 30 years. He spent 13 of those years on Kwajalein. He returned to the island for IFT-6. His job is to think of things that others might have forgotten, to consider possibilities others have not.

"What did I forget to think about?" That's the stuff that keeps you up at night," he said.

On Sunday at noon, however, with only hours to go, he remained cool and calm, visiting with his co-workers, but still not eating on launch day, a habit he developed decades ago in the missile program.

"You have the feeling that you've done everything you can do, that you've paid attention to the things you need to," he said.

And Fratangelo, like many, dismisses much of the criticism stemming from the first five tests of a 20-plus test program.

"We've never had a perfect program," he said. "If you could guarantee success, take away the money for the program. Deploy it. There's no need to fly."

### Fly Baby Fly

Shortly after lunch, for those who ate, the control room filled to capacity. At the center table, facing a large video screen, sat Maj. Gen. Willie Nance, NMD program manager, flanked by Brig. Gen. John M. Urias, SMDC deputy com-

manding general for Acquisition, and Jim Evatt, executive vice president and general manager of Boeing missile defense systems.

All sat and whispered as radio traffic came over the intercom.

"This is a status check."

"All is green, no exceptions."

At T-7 minutes, 1:58 p.m., reports came in of two Zodiacs in the boat exclusion zone at Vandenberg Air Force Base. U.S. Coast Guardsmen picked them up, but the mission would briefly stop. At 2:15 p.m., the clock resumed at T-25 minutes.

At 2:40 p.m., the screen displayed an open field at Vandenberg. When the countdown reached 0, a blast filled the screen and a missile shot from the underground silo.

A chorus in the room rang out, "All right!" and the clock for the interceptor continued its countdown.

Throughout the mission building on Meck, groups of support people, with no buttons to push, sat in various rooms around televisions watching. A graphic display showed the trajectory of the target. All systems reported again, "green."

Around 3 p.m., the countdown fell to the final seconds for the ground-based interceptor launch. As it shot into the heavens, the windowless rooms shuddered slightly, and all could hear the muffled roar of the launch. Again, some low, quiet cheers accompanied the launch.

The video displayed the missile in flight so clearly one could read the decals on the side. As the booster separated, the groups cheered again. The displays returned to a map showing green and red lines approaching each other—one the target, the other the interceptor. Moments before the scheduled intercept, the screen changed to a black and white video feed.

A little white dot known to be the interceptor seemed to hang in space until the countdown to intercept reached zero at 3:09:42. A pause followed, and a bright flash filled the screen. The audience erupted in cheers.

### Post-Op

Though filled with excitement, team members still had to complete some final kill assessments, and many reports would have to be filed and briefings given.

The first, called a "Hot Wash," united the control room teams for a quick overview of the mission. Ivey reported with a smile on his face, "Everything was nominal."

"It went extremely well," Ivey said later. "It couldn't have gone better."

Ivey will PCS from Kwajalein this week. Of his departure and the mission he said, "I went out with a bang."

The range collected large amounts of data, and the GBR assigned and discriminated the target as expected, he added.

Reporting for the BMC3 sensor, which collects the mid-flight data and directs the kill vehicle, Jim Estes simply said, "We had a good mission."

Cornell presented the American flag that flew over Meck to Nance, saying, "Sir, we celebrated the Fourth of July as a team, watching the fireworks. Today, we celebrated again, watching the fireworks of the thunder in the exo," Cornell said, referring to a representative theme given to the mission.

"Though we've had some setbacks over the last year, we've learned a lot, too," Nance replied. "It has been a long year and a lot of work by everyone here. You can be proud of your commitment. You are the world's best at doing this."

Urias agreed, "This is a big step for SMDC and the NMD team."

Speaking to all the people who worked behind the scenes to make this launch successful, Urias said. "I can't say enough about the professionalism and teamwork that each of the members of your team displayed in support of IFT-6. NMD's success is partially yours, and each of you should be proud of your contribution to the greater mission."

**'... It has been a long year and a lot of work by everyone here. You can be proud of your commitment. You are the world's best at doing this ...'**

-- Maj. Gen. Willie B. Nance, Jr.

## FY 2001 in review

# ASPO fields tactical Army space systems

by Jonathan W. Pierce  
Huntsville, Ala.

From a division commander who wants imagery intelligence on an opposing force and the terrain he must operate on, to the brigade commander who needs to know where his units are deployed in real time, to the operations officer who needs to know when the weather will allow helicopter operations, warfighters are increasingly getting their answers from space.

Much of that space technology taps into capabilities once available only to strategic leaders at the national level. The Army Space Program Office (ASPO) was established 27 years ago to execute the Army Tactical Exploitation of National Capabilities (TENCAP) program. During that time, ASPO developed and fielded more than 60 TENCAP systems to provide technological space support for warfighters, according to ASPO director, Col. Darell Lance.

ASPO is an integral part of the Space and Missile Defense Command's (SMDC) Acquisition Center.

### Life Cycle Responsibility

"ASPO is unique among other SMDC programs in that we are involved in the entire life cycle of the systems we develop," said Lance. "We not only develop the systems, we also are involved in acquiring, fielding and maintaining them as well," he said.

ASPO has been so adept in managing its TENCAP programs that Congress directed each military service to establish their own programs based on the Army model.

The program, according to Lance, is responsible for providing tactical commanders with timely, dependable, all-weather, day and night battlefield intelligence from national space and theater reconnaissance systems.

"Our mission is twofold," Lance said. "We provide robust information and intelligence capabilities for tactical commanders by exploiting national intelligence assets. We also advance and protect Army Intelligence, Surveillance and Reconnaissance (ISR) interests in the National Intelligence Community. In

this arena, ASPO has to articulate Army requirements, effect technology transfer and ensure the Army is able to exploit national capabilities."

### Tactical Exploitation System

ASPO has been working to decrease the number of ISR ground stations since the early 1990s. Much of their effort has been in combining the functions of multiple systems into the capabilities of one system which supports the Army Transformation goal of mobility. "The Tactical Exploitation System (TES) combines the functions of the Modernized Imagery Exploitation System, the Enhanced Tactical Radar Correlator and the Advanced Electronic Processing and Dissemination System," said Lance. "DOD and the services have acknowledged the advanced capabilities of TES and the Navy and Air Force are using all or parts of TES.

"As we move toward a joint targeting network, ASPO will add precision targeting software to TES. All of this works toward DOD's goal of a Distributed Common Ground System (DCGS)," said Lance. "We began articulating and validating DOD DCGS architectures when we fielded TES. Now, the Office of the Secretary of Defense, Command, Control, and Communication and Intelligence (C3I), has asked ASPO to write the DCGS Capstone Requirements Document," he said.

TES is an open architecture system allowing quick, inexpensive changes, upgrades and programmed product improvements. It allows dynamic sensor retasking, imagery and signals intelligence exploitation and cross intelligence correlation and integration.

### User Support

Lance believes one of the reasons ASPO systems have worked so well is because of the strong connection it keeps with the users of its systems. "We get all the users together, twice each year, for the Army TENCAP User's Group. There are representatives there for every type of system we have fielded. We listen to what they have to say about the equipment and how it's being used.

Users get a chance to talk amongst themselves to discover how they can probably use their systems better. And we tell them what's going on in ASPO. Then we take the requirements they've expressed, prioritize what improvements they need and we either upgrade their software or develop new software to meet the need. Upgrades for our customers are easy because we continue to maintain their systems with on-site representatives who upgrade the systems for them," he said.

### Grenadier BRAT

Another example of ASPO systems is the Grenadier BRAT (Beyond line-of-sight Reporting and Tracking) program to be fielded between January and June 2001. Grenadier BRAT is a blue force tracking system that uses a small, lightweight transceiver. It identifies its location using global positioning system signals and then transmits its unit identification, location and a short message to friendly receivers over a signal that has a low probability of detection.

Communication is also important to the ASPO mission, according to Lance. "We are going to teach about a day of instruction at the Army Space Operations Officers Course where we will talk about dissemination architectures and national systems from the TENCAP perspective. Our goal is to help Functional Area 40 officers understand everything that's available to help them do their job from not only commercial imagery but also from classified national space assets.

"We also hold what we call the "Schoolhouse" for one week each year. We welcome about 25 people for an in-depth discussion on TENCAP systems. Attendees include members of the Army Space Support Teams, our contractors, new ASPO employees and people from SMDC. This year, we visited Northrop Grumman, our prime contractor, where participants were introduced to the TES. They saw its equipment, and its capabilities, how it does business, and how all its information is overlaid. They found the tour tremendously valuable and we got a lot of great comments as a result," he said.

## PAC-3 intercept a partial success

**HUNTSVILLE, Ala. (Army News Service, July 17, 2001)**—The Ballistic Missile Defense Organization and the Army conducted a test of the Patriot Advanced Capability-3 (PAC-3) missile at White Sands Missile Range, N.M., July 9.

The PAC-3 missile successfully intercepted a jet aircraft, officials said, but missed a ballistic missile target. Officials said the intercept of the jet aircraft was actually more difficult, because it was emitting radar-jamming signals.

The test's objective, officials said, was to simultaneously engage both a theater ballistic missile and a remotely piloted jet aircraft with two PAC-3 missiles. The theater ballistic missile engagement was at short-range and medium altitude, and the aircraft engagement was a long-range, low-altitude mission.

"Today's test was more stressing than all previous tests," said Col. Tom Newberry, Lower Tier Air and Missile Defense project manager. "The [PAC-3] missiles were dropped, vibrated and heated to represent severe handling during 30 years in stockpile. For test purposes today, only one PAC-

3 missile was fired at the ballistic missile target. In actual combat, two PAC-3 missiles may be fired at these targets to ensure their destruction. Extensive post-mission analysis will be conducted to determine if further modifications to the PAC-3 system are required prior to full-rate production."

The PAC-3 missile is a high velocity, hit-to-kill missile and is the next generation Patriot missile being developed to provide increased defense capability against advanced tactical ballistic missiles, cruise missiles, and hostile aircraft, officials said. Unlike earlier Patriot missile explosive warheads, the PAC-3 missile literally collides with its target in mid-air at extremely high speed, destroying the target and neutralizing its payload.

The PAC-3 missile successfully completed nine flight tests prior to the July 9 test. The first two PAC-3 developmental test missions did not involve targets but were structured to verify critical systems and missile performance prior to conducting target intercept flight tests, officials said.

A seeker characterization flight mis-

sion was conducted March 15, 1999, to test a PAC-3 missile with a seeker. Although not a primary objective, an intercept of the target was achieved. On Sept. 16, 1999, a second intercept test was successful. DT-5, conducted Feb. 5, 2000, was a successful intercept of a Hera ballistic missile target. DT-6, conducted Oct. 14, 2000, was a successful intercept of a Storm target by a PAC-3 missile with a simultaneous engagement of an MQM-107 by a PAC-2 missile. DT-7, conducted July 22, 2000, was a successful intercept of an MQM-107 drone representing a cruise missile. Another MQM-107 was intercepted July 28, 2000 during a test not included in the developmental test program.

DT-8, was also the most complex, officials said. It involved a simultaneous engagement of a Hera ballistic missile target using two PAC-3 missiles and a Patriot missile configured as a target by a PAC-2 interceptor. There were five missiles (two targets and three interceptors) in the air at one time and both targets were destroyed.

(Editor's note: Information taken from a BMDO news release.)

**FY 2001 in review**

**Rocket flight yields extensive sensor data**

by Joel L. Shady  
Huntsville, Ala.

"...5, 4, 3, 2, 1, liftoff."

The final seconds before a rocket launch are incredibly exciting...and stressful.

Even though the launch team and the range coordination team have spent countless hours preparing for the launch, the last few seconds before a launch seem to take an eternity.

A million questions race through the minds of individual team members, each wondering if they have tightened that last bolt or tested that particular circuit.

"Liftoff."

Amazingly, time slows down yet again. While the launch team has completed their mission, the range coordination team continues to work to assess whether or not the operation is successful.

Finally, after what seems like an eternity, the range coordination team begins to report the progress of the mission.

"Second stage burnout." "Radar acquisition of the target." "FASP deployment is nominal." "RV deployment is nominal."

These and other scripted phrases provide the launch team with feedback of the performance of the mission.

**Mission successful!**

On Feb. 21, the launch team for the Theater Missile Defense (TMD) Critical Measurements Program (TCMP) activated the automatic launch sequencer for the TCMP-3B rocket 60 seconds before liftoff and anxiously awaited for the range coordination team feedback. The response was "mission successful!"

"I am very pleased. We met all mission objectives," said Mr. Ivan Romero, TCMP-3B Program manager and Mission director. "The TCMP team was well prepared. And that preparation contributed to how smoothly the operation was conducted."

The booster configuration, consisting of a two-stage SR19 stackup with two multiple launch rocket system (MLRS) assist motors, was launched from Wake Island into the U.S. Army Kwajalein Missile Range (KMR) at 6:58 a.m. local time.

**Collecting radar and optical data**

The mission was designed to collect radar and optical data to address critical system level issues for missile defense elements, and thus the payload included a re-entry vehicle, three missile defense experiments, and a Fly Away Sensor Package (FASP).

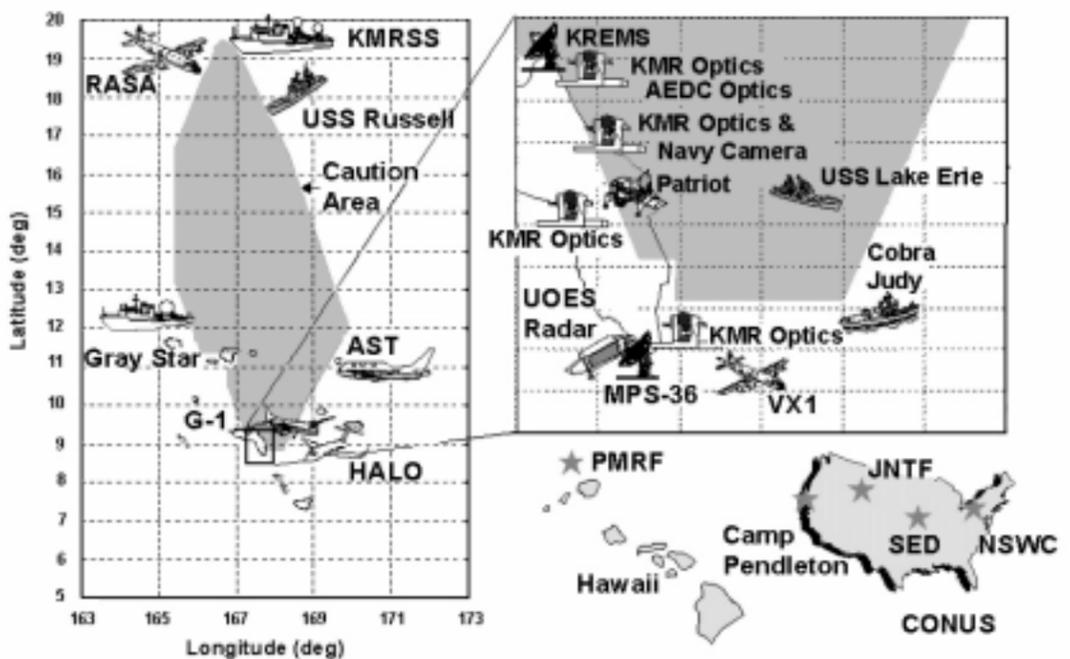
This data will be used to design improvements to missile defense interceptor and sensor systems. Previous TCMP campaigns have provided data immediately useful to Major Defense Acquisition Programs (MDAP) including THAAD, PATRIOT, Navy Theater Wide, and Navy Area Defense.

"We have already received numerous compliments from the MDAPs on the quality and quantity of the data collected during TCMP-3B," said Romero.

During the mission, extensive optical and radar data were collected on the missile and the payload.

In addition to the KMR sensor suite and the FASP, numerous surface and airborne sensors also collected data.

Missile defense elements participating directly in the test included PATRIOT, Navy Theater Wide, and Navy Area Defense.



**Multiple sensors collect data**

RASA - Remote Area Safety Aircraft  
KMRSS - Kwajalein Mobile Range Safety System  
G-1 - This is an unclassified designator for an aircraft.  
KREMS - Kiernan Re-Entry Measurements Site  
AEDC Optics - Arnold Engineering Development Center  
UOES Radar - User Operational Evaluation System

MPS-36 - This is a designator for one of the KMR radars.  
VX1 - I have no clue, but it looks like an unclassified designator.  
PMRF - Pacific Missile Range Facility  
JNTF - Joint National Test Facility  
SED - Software Engineering Directorate  
NSWC - Naval Surface Warfare Center

Other sensors platforms included the U.S. Army Space and Missile Defense Command (SMDC) Sensors Directorate's Airborne Surveillance Testbed, and High Altitude Observatory/Infrared Instrumentation System.

**Analysis begins**

"We have a lot of work ahead of us. Analyzing the data from all of the various sensors is not a trivial task," said Ms. Julia Williams, Range Coordination and Data Analysis team leader.

"Based upon the results of the quick-look analysis, we believe we have achieved all of the objectives mandated by our customers. However, it will be several weeks until we finish analyzing the data and reach a consensus opinion on what actually happened."

An MDAP interoperability exercise was conducted in conjunction with this missile flight test.

Interoperability testing ensures military services can accurately pass information such as target launch and impact points and target tracks to other sensors in the region, allowing them earlier detection, increased reaction time, and improving their ability to provide protection and successfully meet our global commitments at the Battle Force level.

During the event, an Army PATRIOT system and two Navy AEGIS ships tracked the TCMP-3B launch and passed messages over a live Joint Tactical Information Distribution Systems (JTIDS) Network in addition to linking with other military systems capable of receiving this information.

The joint services are actively involved in efforts to define and develop the required JTIDS Network as the principal tactical communications system to support theater ballistic missile defense operations.

**Series of successful tests**

The TCMP program has had five previous successful flight tests: Jan. 28, 1993; July 15, 1996; Feb. 22, 1997; March 1, 1997; and Sept. 6, 1999.

All were highly successful from a data collection standpoint. These missions are part of an on-going effort to collect critical flight test data needed to bolster the nation's theater missile defense. Additional TCMP flights are being planned.

"We are working with our customers to make sure that we design and conduct the TCMP missions to meet their data collection requirements," said Romero.

The TCMP is managed and executed for the Ballistic Missile Defense Organization by the SMDC Sensors Directorate in Huntsville, Ala.

Major launch team members included the Massachusetts Institute of Technology/Lincoln Laboratory of Boston, Mass., the SMDC Theater Targets' Orbital Sciences Corporation, Launch Systems Group of Chandler, Ariz., and the U.S. Air Force Space and Missile Test and Evaluation Directorate, Kirtland Air Force Base, N.M. Range coordination and safety functions were provided by KMR.

**Former ARSPACE soldier dies in Pentagon attack**

Sergeant Major Lacey B. Ivory, who served as the senior personnel sergeant for Army Space Command in 1998 was among the victims of the Pentagon attack on Sept. 11. Our sympathy goes out to his family and friends.

## FY 2001 in review

# First full FA 40 course graduates

**COLORADO SPRINGS, Colo.**—The Army reached a milestone on the afternoon of August 3 as 14 officers successfully completed the Army's first Space Operations Officer Qualification Course.

"There is only a small cadre of Space Operational officers," said guest speaker Lt. Gen. Joseph M. Cosumano, Jr., commanding general of the U.S. Army Space and Missile Defense Command (SMDC) and U.S. Army Space Command (ARSPACE), before a group of 75 military and civilian personnel during the graduation ceremony in the U.S. Air Force Space Command headquarters on Peterson Air Force Base.

The graduates are trailblazers within the Army and Department of Defense, Cosumano said.

"You are breaking new ground here," he said. "In many respects we are really late in getting this course for the U.S. Army, but we are here and it is a milestone for us. It is like any trailblazer. There are really no markers for you. But you know



(Photo by DJ Montoya)

Majors Duncan C. Currier (left) and Robert A. Guerriero, Jr. (right), students in the Army's first Space Operations Officer Qualification Course, update a Space order of battle during a command post exercise.



(Photo by DJ Montoya)

(Left to right) Majors Steven B. Choi, Thomas L. James, and Jim R. Meisinger, students of the Army's first Space Operations Officer Qualification Course, prepare to brief the corps commander on Space Force Enhancements during a command post exercise Aug. 1.

you have to go somewhere and there is a destination.

"So we in the Space business in the U.S. Army, and the Army itself, understand the criticality of Space to its future. And so it is an uncharted path; you graduates will go down that path and mark the trail for those who will follow.

"It's really now left up to you to create your destiny, and your role in Space in service of the U.S. Army and its warfighting commanders."

Space will be a key enabler for the force of the 21<sup>st</sup> century, Cosumano said.

"All the products of Space, navigation, communication, warning and intelligence will be key products for the U.S. Army Objective Force, which will be a much more lighter and lethal force. And for it to accomplish this mission, it must be able to see first, understand first, decide first, and then finish decisively. And Space will enable that force to do that."

The Army has been involved in Space from early on, according to Cosumano.

"The Space program that we know, the NASA Space program, even the Space program that the U.S. Air Force has a large investment in, began in the U.S. Army in the 1950s and 1960s," he said.

This legacy continues as the Army moves ahead.

"We have a number of capabilities that the Army requires to perform its warfighting mission that we get—in and through Space," Cosumano continued. "So it is very, very important that we stay part of Space."

"As we look at the 21<sup>st</sup> century, Space-based radars will look deep into areas where aircraft both manned and unmanned will not go," he said. "Space-based communications will enable soldiers anywhere in the world to enter and gather information from the global information grid. The fact is that the Army's objective force must be and will be a Space-based enabled force."

Cosumano advised the graduates of challenges.

"You will be spread thin across the Army and the Office of the Secretary of Defense, various defense agencies and among our warfighting CINCs. They will come to you and ask, where are the Army Space requirements and they will expect you to

know.

"When you talk, you will be speaking for the Army. You are the ones who stake out the left and the right limits of the Army's fighting position concerning Space control. You are the ones who get OSD and the services to commit to the battlefield characterization, Space-based Blue Force Tracking, and more tactically responsive relevant Space-based infrared satellite radar systems."

After his address Cosumano presented a diploma to each graduate.

The graduates are: Lt. Col. Robert H. Bruce, assigned to SMDC; Maj. Richard E. Brence, assigned to the 193rd Space Support Battalion, Colorado Army National Guard; Maj. Dennis L. Campbell, assigned to U.S. Space Command; Maj. Steven B. Choi, assigned to III Corps; Maj. Duncan C. Currier, assigned to National Reconnaissance Office (NRO); Maj. Robert R. Fabrizzio II, assigned to NRO; Maj. Robert A. Guerriero, Jr., assigned to NRO; Maj. Thomas L. James, assigned to III Corps; Maj. Robert E. Klingseisen, USSPACECOM; Maj. Patrick M. Marshall, assigned to Eighth U.S. Army; Maj. Jim R. Meisinger, 1<sup>st</sup> Space Battalion, ARSPACE; Maj. Jim D. Patterson, assigned to 1<sup>st</sup> Space Battalion, ARSPACE; Maj. Jim D. Pruneski, assigned to the National Security Space Architecture; and Maj. Sean M. Scally, assigned to NRO.

Colonel (P) Richard V. Geraci, deputy commanding general, ARSPACE and DCG for Operations, SMDC, also awarded each graduate with the U.S. Air Force Space and Missile Badge. Cosumano pointed out that the awarding of the badge was a significant event.

"I think it shows the recognition by our sister service of your excellent qualifications and your contribution to Space," he said.

One of the graduates, Brence, is currently with the COARNG. Upon graduation, he will be assigned to the newly formed 193<sup>rd</sup> Space Support Battalion.

Officials from the SMDC Force Development and Integration Center (FDIC), creators of the Functional Area 40 Space Operations Qualification Course, began the intense seven-week course June 15 in Colorado Springs, Colo. The course is designed to train Army officers to be experts in using Space to support the warfighter.

Course instructions were divided into three segments beginning with 25 days of classroom instruction. A week was then devoted to off-site visits to the NRO, the National Imagery and Mapping Agency in Washington, D.C., and Fort Bragg, N.C. This included hands-on training with the Army Space Program Office, which has developed the Tactical Exploitation of National Capabilities Space support systems used by Army warfighters.

The course also included a 43-hour command post exercise designed to test each student's proficiency in 24 individual critical tasks culminating in graduation and assignment to operational staffs and Space systems program offices.

Plans are under way for the next two FA 40 classes that are slated for January and June 2002.

## FY 2001 in review

# Soldiers ensure quality communications

We've all experienced that irritating loss of radio signal as we drive from one city to another. Weak signals, static interference, conflicting signals from other radio stations are annoying when we can't get the talk shows, music or sports programs we want.

But, loss or degradation of signals in military communications is not just annoying, it could have strategic or tactical importance to national security or the safety of personnel or missions.

You might expect the Army would have a few thousand soldiers making sure our vital communications remain effective. In reality it's just one battalion in the U.S. Army Space and Missile Defense Command that ensures the quality of the signal so the content of communications get through.

The 1<sup>st</sup> Satellite Battalion headquartered in Colorado Springs, Colo., under Army Space Command, maintains the quality of DOD communication signals. With more than 300 soldiers, the battalion's six companies are stationed in California, Colorado, Maryland, Germany and Japan. One of those companies, B Company, is stationed at Fort Meade, Md.

"We provide the communications network and control the signals of the Defense Satellite Communications System (DSCS)," said Capt. John Gregor, commander of Bravo Company. The DSCS satellites, he said, support communications for tactical units, the National Command Authority and other organizations approved by the Joint Staff. And it's a mission that's growing even as the Army has been downsizing. In 1990 the battalion handled 378 missions. In 1999 the number of missions rose to 1,879.

The Air Force, according to Sgt. 1<sup>st</sup> Class Raynell Ferguson, the Operations Platoon sergeant, owns the satellites. "They launch them and they maintain the DSCS satellites' proper telemetry. But we control the communications payload," said Ferguson.

"We make sure there is a good signal so communications data can flow through the satellite and the terminal on the ground in the most efficient way possible," said Gregor.

"Some people might want to know that we monitor the signal gain - the strength and clarity of the signal but we don't actually see or hear the actual message," said Ferguson.

"We are bandwidth and power



Photo by Jonathan Pierce

Specialist Glen Miller and Staff Sgt. Harry Osborne check the signal strength from a Defense Satellite Communication Systems satellite.

managers. We direct the bandwidth and frequency of the signal and we determine the strength of the signal," he said.

Part of the mission is to set the gain parameters and then to make sure that actual gain is as close as possible to the predicted level.

Team members work 12 hours on and 12 hours off on rotating shifts.

"When I got here, I was overwhelmed," said Spec. Jason Smith.

Even after nine months of ad-

vanced individual training Smith still found the actual work to be a challenge.

"It is challenging and exciting," he said. "I like coming to work because I feel like I'm doing something important. It's not really difficult but you do need experience to really do well."

"One of the things that helps a lot here is we rotate positions. Everyone gets to know what happens at each of the terminals, and you don't get tired of doing just one thing," Smith said.

## Who's Who in SMDC

### Huntsville employee graduates with honors

Ms. Dottie White, recently selected for a promotable GS 7-9-11 public affairs specialist position in Huntsville, graduated as the distinguished honor graduate from the Defense Information School Basic Journalism Course after 12-weeks training at Fort Meade, Md.

### Two SMDC employees graduate from AMSC

**Fort Belvoir, Va.** - Two Space and Missile Defense Command employees graduated Aug. 10 from the rigorous 12-week Sustaining Base Leadership and Management program at the Army Management Staff College, Fort Belvoir, Va.

Nevrik Elizabeth Ratliff is a procurement analyst in Huntsville, Ala., and Rhonda Paige is a public affairs specialist in Arlington, Va.,

Ratliff and Paige were board selected to attend the 12-week resident program based on their potential to assume top-level Army leadership and managerial roles.

AMSC educates the future leaders of the Army's sustaining base ¾ the agencies and programs that support soldiers.

"The sustaining base - those future civilian and military leaders we are educating—gets the soldiers 'on point,' and makes sure they have what they need to do their job and, oh by the way, also covers all the areas that support their families ... to get those concerns out of the soldiers' minds," said Col. Philip L.

Wilkerson, Jr., AMSC commandant.

Classes stress critical thinking and active learning, intensive self-preparation and in-depth analysis of various problems and situations.

Applicants now apply on-line, streamlining and shortening the process. For more information about AMSC and the SBLM program, visit the Web site at:

[www.amsc.belvoir.army.mil](http://www.amsc.belvoir.army.mil).

### Personnel announcements

#### Civilian Awards

Alspach	Elaine	AC-T-T	SA
Anderson	Virginia	TC-MT-A	SA
Bishop	William	AC-T-I	SA
Blackwell	Norman	AC-T-S	SA
Brand	David	TC-MT-A	SA
Brown	Stafford	TC-MT-A	SA
Carpenter	Randall	TC-MT-E	SA
Clemons	Berry	TC-MT-E	SA
Compton	Jeff	TC-MT-E	SA
Crawford	F. David	TC-MT-A	SA
Crawford	John	TC-MT-N	SA
Davidson	Portia	PT-F	SA
Davis	Donna	PT-C	SA
Dunlap	Helen	AC-T-I	SA
Esquibel	Jerry	TC-MT-A	SA
Fletcher	James	TC-MT-E	SA
Foreman	Penn	TC-MT-E	SA
Garner	Horace	BL-SC	SA

Glidewell	John	AC-T	SA
Greenhill	Billie	RM-S	SA
Gutierrez	Paul	TC-MT-A	SA
Hall	Shawn	G6/RSSC	SA
Hancock	Tamela	AC-T-A	SA
Harris	Hudson	BL-MC	SA
Hinton	Beltha	RM-S	SA
Hopper	Ima	TC-MT-E	SA
Isom	Leah	TC-MT-A	SA
Kyle	Jeri	TC-MT-E	SA
Lee	Michael	TC-MT-Y	SA
Little	Mark	TC-MT-T	SA
Love	Rudolph	TC-MT-E	SA
McKee	Steve	ARSPACE/DOIM	SA
Meadows	Craig	TC-MT-T	SA
Miller	Mary	TC-MT-E	SA
Montano	Norman	AC-T-A	SA
Morgan	Boyce	TC-MT-E	SA
Neal	Mona	AC-T-I	SA
Phillips	John	AC-T-S	SA
Rains	Terry	AC-T-I	SA
Rodriguez	Cristina	PT-C	SA/TOA
Schneider	William	TC-MT-Y	SA
Smith	Rosalind	AC-T	SA
Snoddy	Claude	TC-MT-E	SA
Ta	Dan	TC-MT-E	SA
Verneti	Richard	TC-MT-E	SA
Walls	Gregory	TC-MT-A	SA
Ward	Ross	AC-T-I	SA
Welch	George	TC-MT-K	SA
Wesnor	Daniel	TC-MT-A	SA
Wright	Shirley	TC-MT-E	SA
Oglesby	Debra	AD-K-R	OTSCA
Peirce	Beth	CM-AK	OTSCA
Becker	Robert	TC-MT-K	OTSCA/PA

Brumlow	Paula	PT-C	TOA
Crow	Gayle	ARSPACE/G4	TOA
Larson	Ben	ARSPACE/G4	TOA
Tyson	Omega	PT-C	TOA
Andre	William	TC-MT-A	PA
Baldwin	Johnny	TC-MT-A	PA
Barrineau	Richard	EN-V	PA
Belcher	Thomas	OP-O	PA
Biddle	Michael	PA-W	PA

#### LEGEND

SA - Special Act Award  
 PA - Performance Award  
 OTSCA - On-the-Spot Cash Award  
 TOA - Time-off Award  
 QSI - Quality Step Increase  
 AAM - Army Achievement Medal  
 ARCOM - Army Commendation Medal  
 MSM - Meritorious Service Medal  
 LOM - Legion of Merit

—See Awards

# SETAC Contracts team receives Defense award

The U.S. Army Space and Missile Defense Command (USASMDC) Systems Engineering and Technical Assistance Contract (SETAC) Team earned the Defense Acquisition Executive (DAE) Certificate of Achievement for Fiscal Year 2000 given by David R. Oliver, Acting Under Secretary of Defense for Acquisition, Technology and Logistics. The DAE certificate recognizes organizations, groups and teams for exceptional contributions in reducing life-cycle costs and improving Department of Defense acquisition systems and programs.

The SETAC Team was awarded the DAE certificate for using standard templates when receiving or issuing new or revised requirements, as well as when receiving proposals and task order management plans. Team members include Ms. Lynne Washburn, Command Support Services Branch Chief; Ms. Susan Rogers, SETAC Team Leader; Ms. Carol Meenen, program analyst; Mr. Kenneth Bragg, Ms. Amy Greer, Ms. Astrid Lahiere, and Ms. Michele Williams, contract specialists.

The SETAC supports a broad range of requirements within SMDC, the National Missile Defense Joint Program Office (NMD-JPO), and the Program Executive Office - Air and Missile Defense (PEO-AMD) community. Streamlining mechanisms are a necessity to meet the high demand for these advisory and assistance services.

The procurement action lead time (PALT) for award of new task orders was reduced from five days after receipt of the requirement in FY97 to two days in FY98; new awards are currently completed in 12 hours or less. Similar, non-streamlined procedures have resulted in 60-to-90-day PALTs for task order execution. Task order modifications are executed in an average of nine days; the current PALT for similar actions on other contracts is 30 days.

The major time/cost-reducing factor in the issuance/administration of task orders is the use of templates for all actions under SETAC. Whether receiving new or revised requirements; issuing requirements packages; or receiving proposals and/or task order management plans, the SETAC Team has a standard template for the process. Use of standard templates saves time and money as it reduces both the requiring activity's preparation time and the contract specialist's time in finalizing the requirement and executing the task order.

The major payoff in use of templates for SETAC has been in customer satisfaction, however, the reduction (65-70%) in the number of CAMO employees required to support the command's overall SETA requirements has also allowed the remainder of the office to successfully complete the non-SETA work even in the new "downsized" acquisition workforce. This contract mechanism was the

first of its kind to be used by USASMDC, NMDJPO, and PEO-AMD. However, since its inception, several other similarly-structured contracts have been awarded for other types of R&D efforts. Currently, the organization is in process of competing a similar indefinite delivery/indefinite quantity (ID/IQ) contract for another organization, as well as re-competing the SETAC; both will be competed and administered like the current SETAC. The cost to develop the templates was minimal since these activities were completed by the Branch Chief, the Team Leader, and the other Contract Specialists on the team.

The use of the multiple-award ID/IQ contracts allows the maximum flexibility for the requiring activities, however, with more than 500 current users and hundreds more potential users, it was imperative that a streamlined mechanism be implemented to avoid an unacceptable bottleneck within the contracts office. If each of the 3,500+ actions completed since the beginning of the period of performance had taken the average 30-day PALT, many of the requirements would still be undefinitized. As with any research and development activity, the management, programmatic, and technical requirements are always evolving to meet the latest state-of-the-art capabilities. Such an ever-changing environment mandates that contracts can react quickly, accurately, efficiently, and on an easily-repetitive basis.

## soldiers—

Continued from Page 13

kind of stuff our Battle Lab looks at today.

"When the Army studied the impact of future Space operations, we found that we were already using other data from Space besides GPS," said Partridge. And the logical extension of that is to organize units to handle it. So we started developing capabilities, programs, and products to support the warfighter."

Today, the 1<sup>st</sup> Space Battalion has two primary missions, missile warning and Army Space support teams. The Missile Warning Company provides direct downlink capabilities from infrared warning satellites that pick up launches of missiles. Soldiers in missile warning detachments are located in Korea, Germany, and Colo-

rado Springs.

"Our Space Support Company has teams associated with each Army Corps," Partridge said. "Those guys go out on exercises and provide expertise about Space systems during real world operations. They were deployed with Task Force Hawk to Albania during the Kosovo crisis. Our Headquarters and Headquarters Company assists the regional SATCOM Support Centers. The centers are joint operations where Theater CINC's can go one-stop shopping to get satellite communications. We also keep track of where all our Space forces are, and the status of their missions and equipment."

"The Air Force builds satellites, launches satellites, and operates satellites, but the

Army is the biggest user of Space information and data," he said. "There is definitely a ground focus for what we do, but Space is inherently joint in the way we operate our Space-based systems. The Air Force plays a very important role in launching the satellites and making sure they stay in the right orbit so the Army and Navy can use them.

"Just about everything on the battlefield of the future is going to depend on Space-based navigation capabilities. When we look at the future, from the legacy force through the transformation process all the way out there to the objective force, I think it's pretty well recognized that Space is going to be a critical part of those capabilities," Partridge said.

## Awards—

Continued from Page 19

Blankenship	Kaye	TC-MT-Y	PA
Brown	Terry	AC-K-R	PA
Boswell	Jack	EN-V	PA
Bowles	Franklin	TC-MT-E	PA
Caruso	Gerald	AC-T-I	PA/SA
Congo	William	PA	PA
Fastenrath	Karl	TC-MT-K	PA
Fletcher	James	TC-MT-E	PA
Franklin	Robert	TC-MT-K	PA
Gallien	Dennis	EN-V	PA
Hamilton	Thomas	TC-MT-S	PA
Hayes	James	TC-MT-S	PA
Hennings	John	TC-MT-S	PA
Johnson	John	TC-MT-S	PA
Jones	Leslie	AC-K-RR	PA
Justice	Jerrell	IM-C	PA
Kenamer	Judy	AC-K-RP	PA
Knight	Pamela	TC-MT-I	PA
Lash	Michael	TC-MT-T	PA
McCauley	Daniel	EN-I	PA
McMurtrie	Stanley	AC-K-RD	PA
Merritt	Ira	TC-MT-K	PA
Nichols	Beverly	IC	PA
Ogle	Robert	IMP	PA
Otey	Bertha	TC-MT-D	PA
Pardue	Albert	TC-MT-E	PA
Qualls	James	TC-MT-Y	PA
Ragan	Tara	TC-MT-I	PA
Randles	Carolyn	TC-MT-Y	PA
Riley	Leon	TC-MT-A	PA
Robertson	Rodney	TC-MT	PA
Rodgers	Richard	TC-MT-A	PA
Schumann	Deborah	SP-CP	PA
Sevigny	Richard	AC-T-P	PA/SA
Sleiman	Ali	TC-MT-K	PA
Sloan	George	TC-MT-E	PA

Smith	Waydene	TC-MT-D	PA
Strickland	Brian	TC-MM	PA
Tilley	Patrick	TC-MT-E	PA
Whitt	Ellis	TC-MT-E	PA
Young	Irene	TC-MT-E	PA
Atchley	Diane	AC-K-ZR	QSI
Grannan	Michael	AC-J	QSI
Grayson	Wonda	PT-C	QSI

### Military Awards

Spec. Brandon Krumwiede	TMWC-C	AAM
Spec. Matthew D. Valek	TMWC-T	AAM
Sgt. Jason Czachor	AASSC	ARCOM
Sgt. James K. Dunlap	ARSSC	ARCOM
Spec. Bradley Stratton	TMWC-C	ARCOM

### Promotions

Carol Alkhafi	DCON	GS-13
Phyllis Baez	Command Group	GS-08
Daniel T. Bentley	ARSSC	Sergeant
Mike Cornett	1 <sup>st</sup> SATCOM	GS-11
Gene Dohrman	SMDC-AC-K-ZW	GS-14
Stephanie Johnson	Battle Lab West	GS-09
Ben Larson	G4	GS-11
Billy Lemley	SMDC-CM-CS	GS-13
Robert Orndoff	ARSPACE	Specialist
Andre Parent	1 <sup>st</sup> SATCOM Bn, C Co.	GS-13
Phyllis Poyhonen	DCON	GS-13
Doug Smith	G2	GS-13
Jae Steele	SMDC-TC-MT	GS-07
Wanda Woodson	G6	GS-13

### Retirements & Farewells

Kim Austin	ARSPACE/G3	BL West
Charles Bailey	AMD-NMD-R-D	
Jasmine Brown	ARSPACE/DCON	Air Force

Lt. Col. Jeff Davies	DCSSPA	Ft. Bragg
Carolyn Fritz	ARSPACE/G2/SMDC-AR-IN-ILT	
Col. David Gallop	NMDTSM	ASAALT
Teresa Gibson	SMDC-TC-TD-SS	
Pamela Goode	SMDC-AC-K-ZH	
Spec. Kevin Keller	TMWC-P	ETS
Thomas Kanik	SMDC-IN-I	
Capt. Paul Nichols	DCSSPA	DAMO-FDE
Lt. Col. Rick Rea	HQ,ARSPACE	Retired
Matthew Rushing	SMDC-IM-P	
Sgt. Pedro Sarmiento	TMWC-P	Ft. Lewis
Capt. Kelly Spillane	FDIC	CGSC
Spec. Bradley Stratton	ETS	TMWC-C

### New Employees

Anton	George	SMDC-AR-OF
Chappell	Carlton	SMDC-AR-OF
Denham	Kerrin	ARSPACE/G2
DeSalvo	Misty	ARSPACE/1 <sup>st</sup> Space BN
Duggan	Patricia	SMDC-CM
Ervin	Scott	ARSPACE/G6-RSSC-Europe
Fahrner	Claudia	SMDC-TC-MT
Fratris	Leo	SMDC-CM
Gray	Frank	ARSPACE/G3
Howard	Michael	ARSPACE/PAO
Kwiatkowski	John	DCON - SMDC-CM-S
Lemley	Billy	SMDC-CM-CS
Little	Robert	ARSPACE/G6
Norris	Robert	ARSPACE/G6-Tampa
O'Connell	Sandra	SMDC-CM
Pestona	Robert	SMDC-SP-CC
Potter	Thomas	SMDC-AR-IM
Powers	Donald	SMDC-AR-EN
Prince	Fred	SMDC-AR-OS-O
Rains	Brenda	SMDC-TC
Tucker	Robert	SMDC-CM-KA
Wells	Clarence	ARSPACE/G3- SMDC-AR-OL-S
Welles	Rhonda	ARSPACE/G6- SMDC-AR-OS-S
Williams	James M	SMDC-AR-IN-A

# Youth take trip of a lifetime to Space Camp

by Dan Coberly  
Huntsville, Ala.

A dream came true recently for five SMDC children. They earned their Space Camp wings.

Thanks to the U.S. Army Space and Missile Defense Association (ASMDA), Jordan A. Philson, Chelcey Farrar, Christopher M. Clayton, Tara S. Schrimsher, and Sean M. McConnell shared a five-day adventure together at Huntsville's U.S. Space Camp.

"My family used to drive by and I'd see the Camp and hoped to come here someday," said Christopher Clayton. "Now, here I am and it's pretty cool. It was neat learning about Space, but I think it would be scary to be out there. I learned that the Moon and the stars are a lot bigger than we think and that made me feel pretty small. I'd like to come back here soon, even next month if I could, to learn more!"

Jordan Philson said it was her first time on her own, away from home. She missed her mom and dad and her sister, but she wasn't too lonely because she made new friends.

"I really looked forward to coming here. I wish school was like this! When I get back home, I'll tell my folks everything I rode on and what we did," Jordan said. "The Space Shot simulator was really neat. I'll encour-

age other kids to come here, to learn and to make new friends."

Chelcey Farrar liked the Space Shot too. She was a Payload Specialist during a mock Space mission. To her, Space Camp did more than teach her something about other planets. It made her think more about the chance to someday have a friend on one of them.

"It was fun being a Payload Specialist because I got to ask a lot of questions and push a lot of buttons," Chelcey said. "I learned a lot of stuff about Space, like the Gemini program. I learned that the red planet we call Mars has a lot of colors mixed in it, that it's really more brown than red. Maybe one of my friends here will live on another planet someday".

Tara Schrimsher picked Space Camp as a more fun and interesting place than Disney World.

"I liked the Space shot best of all. It's a pretty exciting ride. And I got to go on a mission, something they don't have a Disney," Tara said. To go on a mission, you need to know a lot about being an astronaut, and you have to really know your role as a commander or mission scientist. It's not easy, it's hard work, but it was fun".

Sean McConnell couldn't decide whether he liked the Gravity Chair or the G Force Chair best of all.

"I didn't know very much about Space at all before I came here," Sean explained. "Now I know a lot. I thought it would be like the movies, but it's really different. The movies are way off track. I really liked the G Force Chair, but the Gravity Chair was pretty neat too, it puts you on 1/6<sup>th</sup> normal gravity. The G Force Chair is a lot of work, but the Gravity Chair is one thing where you don't have to pull yourself down so much. I learned the most about the Redstone Rocket, which I didn't know much about."

For Larry Burger, president of ASMDA, sending kids to Space Camp allowed his organization to make a positive difference in the lives of children whose parents work for Space-related organizations.

"We are very excited to provide an opportunity to send children of employees at SMDC, NMD, and PEO AMD to Space Camp. Our association's purpose is to promote Space, Space training, and Space education, so we felt it was a wonderful opportunity to connect the Space and Rocket Center with employees who work for Space-related organizations. With a wonderful facility like Space Camp near us, it was a great opportunity for everyone. We hope to send more children there soon."

The ASMDA's Space Camp Scholarships offers eligible children, aged 9-11, one week at Space Camp, valued at up to \$1,750, including round trip airfare for the child from the parent's work location, a Space Camp flight suit and clothing package, a phone card, and a small amount of spending money. To qualify, children must write an essay in their own handwriting answering a series of questions such as "Why should man go to Mars?"

According to Garth Bloxham, ASMDA's Scholarship Committee chairman and a member of the board of directors, another scholarship opportunity will be provided during Spring break. "Then, our goal will be to award three scholarships to family members of ARSPACE soldiers, three to families from Huntsville, and four more to charity organizations in Washington D.C. and Huntsville," Bloxham said.

The ASMDA is a non-profit organization whose purpose is to support SMDC in the attainment of its goals and vision. Scholarship applications will be made available through various public affairs offices.

(Clockwise, bottom L-R): The crew of Jordan A. Philson, Tara S. Schrimsher, Chelcey Farrar, Christopher Clayton, and Sean McConnell wave as they prepare for a mock Space mission at Huntsville's U.S. Space Camp. The five children won scholarships to the camp provided by the U.S. Army Space and Missile Defense Association.



## Quality Awards grant SMDC teams \$150,000

Three directorates not only excelled at improving the efficiency and economical operation of their areas in 2001, they walked away with tens of thousands of dollars as well—with the commanding general's blessing.

Using the Army Performance Improvement Criteria, the Ballistic Missile Targets Joint Project Office (BMTJPO), the U.S. Army Kwajalein Atoll (USAKA), and the Technical Center's Sensors Directorate earned the 2001 Commanding General's Quality Awards.

Lieutenant General Joseph M. Cosumano, Jr., commanding general of the U.S. Army Space and Missile Defense Command, recognized the directorates with trophies and checks totalling \$150,000 to be used in employee enhancement programs within their organizations.

### Merit Award for Quality

Third place went to the Sensor's Directorate whose APIC implementation is to serve as a pilot program for the entire Tech Center.

The Sensors team set up an Integrated Process Team (IPT) to work improvement initiatives across the directorate. This led to a greater focus on their customers by improving communications, better understanding needs, and assessing satisfaction levels.

They implemented the Balanced Scorecard to measure performance, conduct organizational reviews, and develop a strategic planning deployment system.

Finally Sensors developed a number of venues for collecting employee feedback on workplace and well-being issues.

Mr. Rodney Robertson, associate director for Technology in the Tech Center accepted a trophy from Lt. Gen. Cosumano and a check for \$25,000 for the Sensor's Directorate.

### Chief of Staff's Quality Award

Last year's first place winner, USAKA, couldn't get enough of a good thing, winning the second place award this year.

Among the qualities that brought USAKA back to the winner's circle is their inclusion of contractor site managers as part of their senior leadership team. This helped develop and promote missions, values, vision, and strategic goals. Part of USAKA, the Reagan Test Site (RTS) also used IPTs organized around its mission customers.

USAKA also implemented a quality Command Information Program for the people living and working there. Its use of TV and radio stations, the Hourglass newspaper, town hall meetings, and advisory councils helped keep

personnel educated on important issues.

Finally, USAKA developed a web-based APIC training course employees could access at their own convenience. Once completed, the training coordinator gets an automatic e-mail so the employee receives credit for the course.

Lieutenant Colonel Bill Anderson, director of the Kwajalein Support Directorate in Huntsville accepted the trophy and check for \$50,000 on behalf of the entire USAKA family.

### Commander's Quality Award

Last year's second place winner, the BMTJPO, won first place. Mr. Rocky Glidewell, BMTJPO's deputy project manager accepted a check for \$75,000 for his fellow employees.

They focused on customer service by providing quality targets technology and customer service. BMTJPO created action plans to transition from planning to doing.

They exceeded *Fortune Magazine's* measure for training per employee by providing an on-site customer service training course.

BMTJPO's executive steering group also holds monthly performance reviews.

Finally, it created two process mapping teams for its acquisition strategy and contract management processes.

# Huntsville workers hold health, safety fair

Hundreds of SMDC employees took a break from their hectic work schedules or lunch breaks to participate in the SMDC Safety and Health Awareness Fair in Huntsville, Ala., Sept. 26.

According to Mario Owens, Safety and Occupation Health Manager at SMDC, "We need to maintain a high profile of safety and health awareness in our lives every day. The fair should guide our participants on proactive measures for life safety."

The fair included several booths which focused on a variety of issues such as ergonomics, cholesterol, blood pressure, cancer information, child safety, safe driving techniques, fitness and nutrition, smoke detectors, fire prevention, destructive weather, radon test kits, first aid kits, and VIALS for life kits.

Employees had the opportunity to have their blood pressure, body fat and cholesterol levels checked.

Additionally, employees received free brochures on various subjects and many useful items such as pencils, pens, pillboxes and much more.

Also, door prizes were awarded every 15 minutes by a random drawing. Some of the door prizes included smoke alarms, carbon monoxide alarms, gloves, safety goggles, tool bags, safety vests, cable ties, flashlights and many more.

Owens said he expected over 500 participants for the fair, and by noon there were already 300 registered guests.

Owens, who is a new employee at SMDC, said he spent four or five weeks planning the event.

"Hopefully next time we can expand a little bit more and make it even better," Owens said.

"With the SMDC Safety and Health

Awareness Fair, we intended to bring a high sense of safety and health awareness in the home, on the highway and in the work environment," Owens said.



(Photo by Dottie White)

Edie Tyson (left) of the Kwajalein Support Directorate has her cholesterol level checked by Staff Sgt. Warrentina Berry. Conducted as a part of Health and Safety Day in Huntsville, the cholesterol test results were ready within five minutes.

## SMDC unveils Solid State Heat Capacity Laser

by Marco Morales  
Huntsville, Ala.

A ribbon-cutting ceremony to unveil the Solid State Heat Capacity Laser (SSHCL) was conducted Sept. 28 at the High Energy Laser Systems Test Facility (HELSTF).

The SSHCL, a 10-kilowatt class laser,

is the most powerful device of its kind in the world and represents a significant leap ahead technology to support the warfighter of the future.

Speaking to an audience of numerous defense industry VIPs, distinguished guests, and news media representatives, Brig. Gen. Stephen J. Ferrell, special as-

sistant to the commanding general, U.S. Army Space and Missile Defense Command (SMDC), pointed out two major challenges affiliated with further development of the SSHCL and similar projects.

"The progress we've seen to date in the very nature of solid state lasers holds great promise for our Army and for all the services of our Nation, not only on the ground but in Space," Ferrell said. "The challenge to HELSTF and our employees in our other departments is to apply this technology to enable transformation and change to give our soldiers the advantage they need. Secondly, we must continue to focus our efforts, we must work together and cooperate, benchmark each other's successes and lessons learned," he said.

Sponsored by SMDC, the SSHCL was developed by Lawrence Livermore National Laboratory, Livermore, Calif. The goal of SMDC's SSHCL program is to build a next-generation system with enough electrical efficiency to produce a 100-kilowatt laser beam from one megawatt of power and eventually mount this system on a tactical vehicle such as a High Mobility Multi-purpose Wheeled Vehicle. The SSHCL would be able to protect against tactical threats including short-range artillery, rockets and mortars. There is no current effective protection against these weapons on the battlefield.

"I fully support efforts to develop solid state laser technologies for incorporation into the Army's Future Combat System, when appropriate," said Lt. Gen. Joseph M. Cosumano, Jr., commanding general, SMDC. "Solid-state laser technologies promise to provide relatively lightweight and compact high average power laser devices that are compatible with the Future Combat System and have viable applications across a broad spectrum of missions for the tactical Army," he said.



(photo at left) Using a giant pair of scissors (from left to right), Lt. Col. Lynn Tronti, director, HELSTF, Dr. William H. Goldstein, associate director, physics and advanced technologies, Lawrence Livermore National Laboratory, Brig. Gen. Stephen J. Ferrell, special assistant to the commanding general, SMDC, and Dr. Randy Buff, program manager, SSHCL at SMDC, cut the ribbon during the ceremony at HELSTF. (photo at right) Dr. Randy Buff (forefront) explains to Brig. Gen. Stephen J. Ferrell some of the capabilities associated with the SSHCL during a brief tour of the laser system inside Test Cell No. 4 after the ribbon-cutting ceremony.



(Photos by White Sands Missile Range Visual Information Services)

## Soldier responds to SMDC requirements

When mandatory requirements for certifications for Career Program 11 changed on short notice more than 30 SMDC employees needed to complete the Planning, Programming, Budgeting, and Execution System Course before Sept. 30. The problem was where to find a course on short notice for so many people.

Colonel Michael Lavalle, deputy chief of staff for Resource Management, and Connie Hannaford coordinated with the Finance School at Fort Jackson, S.C.

Captain Elizabeth McGunigal, a qualified PPBES instructor, was ready to begin terminal leave when she heard of the predicament at SMDC. Instead, she volunteered to teach one last class. During the course, which discusses budget preparations from the installation to the Department of the Army level, Capt. McGunigal was notified she had been selected as the Instructor of the Year for 2001 at Fort Jackson.

At the conclusion of the course, SMDC's deputy commanding general for Acquisition, Brig. Gen. John M. Urias expressed the appreciation of the command and all of the SMDC students for Capt. McGunigal's sacrifice, by presenting her with an SMDC Commander's Coin.

## Small Business Program gets emphasis

by John Ralls  
SMDC Associate Director for Small Business

The Under Secretary of Defense (Acquisition, Technology and Logistics), Mr. Pete Aldridge, has issued a serious challenge to all involved in the acquisition process—sustained Small Business Program performance improvement.

Most SMDC, BMDO and PEO AMD employees are affected because most of our work is done through contracting and all federal purchases above \$2,500 are affected in some way by the various small business programs that Congress has mandated through Public Law.

How employees are affected depends on the part one plays in determining what to buy (requirements), how to buy it (strategy), and where they sit in the chain of command (accountability).

The purpose of Mr. Aldridge's directive, a May 16, 2001, memorandum to all Service secretaries and Defense Agency directors, is to "ensure a greater level of program understanding, accountability and senior management support" for the Small Business Program. The major tenets of the memorandum are:

(1) The establishment of a five-year performance improvement plan by each MACOM.

(2) The establishment of a new rating metric to measure each MACOM's small business program performance.

(3) The establishment of a single performance rating for each MACOM that holds the senior leadership accountable for small business program accomplishments.

(4) The establishment of an annual small business awards program.

(5) The annual training of all DoD contracting and program management personnel on the Small Business Program.

(6) The establishment of the requirement for Service secretaries and Defense Agency directors to semi-annually report their performance to him.

So, How will business be done?

(1) If you are a requirements initiator, you are expected to first consider how small businesses might fulfill your requirements — before considering other acquisition strategies. The SADBUC office can help by explaining the various aspects of the Small Business Program and discussing possible contractor capabilities.

(2) If you are in the execution or approval chains, you are expected to ensure that each proposed procurement has been thoroughly scrubbed for possible small business participation prior to taking your official action.

One question always asked is: Who is checking? As usual, the SADBUC office will prepare command statistics on a monthly basis. But, here is the kicker! These statistics will be compiled in a much more detailed manner than in the past. Separate accounting of SMDC, PEO AMD, BMDO, and other government activity contracts will be maintained. Within SMDC, each major subordinate element (MSE) will have its own report card and so will each of their subordinate groups. The individual command staff offices (like the DCSIN, which sponsors the Command Information Management System (CIMS) contract) will also be graded. The SADBUC office personnel will discuss the statistics with the MSE & staff directors and the deputy commanding general-acquisitions on a monthly basis and with the commanding general and PEO AMD on a quarterly basis. Requiring elements that aren't doing well can expect some serious encouragement. Those scheduled for future Command Program Reviews (CPRs), should include information about small business program participation in their briefings.

Please address questions about the Small Business Program to either Christina Ryan, (256) 955-4278, or John Ralls, (256) 955-3412. Or e-mail at Christina.Ryan@smdc.army.mil or john.ralls@smdc.army.mil.

## Eight inducted to Hall of Fame

Eight individuals who have made a difference in the Nation's Space and missile defense capabilities were inducted to the U.S. Army Space and Missile Defense Hall of Fame during a reception at the 4<sup>th</sup> Annual Space and Missile Defense Conference held in Huntsville, Ala., Aug. 20-22.

U.S. Senator Jeff Sessions (Alabama) and Lt. Gen. Joseph M. Cosumano, Jr., presented the honorees with awards from the Army Space and Missile Defense Association (ASMDA) which manages the Hall of Fame.

ASMDA President, Larry Burger, told the assembled guests that these eight men had, "...distinguished themselves with significant and lasting contributions to the advancement of missile defense."

The honorees include: Thomas A. Bair, Dr. Michael A. Holtcamp, Jimmy Pignataro, Frank Vann, Robert G. Menotti, Dr. Thomas Patton, Donald S. Russ, and A.Q. Oldacre.

Bair, recognized in memoriam, served as the SMDC Deputy Chief of Staff for Resource Management and was the Area Career Personnel Manager for Career Program 11.

Holtcamp served as the Deputy Project Manager of the Joint Theater Missile Defense Project Office, as Program Manager of the Arrow Program, and finally as the Chief Engineer of the Program Executive Office, Air and Missile Defense.

Pignataro, a world-recognized expert in missile defense discrimination, he also provided the leadership for the first government contract for research on the free electron laser.

Vann served 18 years as program manager



Dr. Michael A. Holtcamp (center) is flanked by Senator Jeff Sessions and Lt. Gen. Joseph M. Cosumano, Jr., during his induction to the U.S. Army Space and Missile Defense Hall of Fame.

of field measurements programs collecting data for ballistic missile defense programs using infrared optical sensors.

Menotti distinguished as deputy program manager for the Airborne Optical Adjunct, a program that is still making significant contributions to missile defense. Under his leadership, the COBRA JUDY ship borne sensors and COBRA BALL airborne sensors were key data collectors for the nation's missile defense programs.

Patton served as the Arms Control and Treaty Advisor for the U.S. Army Strategic De-

fense Command. The success of each Army program undertaken during the Strategic Defense Initiative era can be traced to a large degree to the efforts of Dr. Patton.

Russ served as director of the Ballistic Missile Defense Advanced Technology Center where he provided leadership and guidance to the key technologies that we are putting into the field today.

Oldacre was deputy program executive officer for Air and Missile Defense. He is responsible for founding the PATRIOT Advanced Capability-3 improvement program.

# Deputy commander pins on first star

**COLORADO SPRINGS, Colo.**—Soldiers and civilians of the U.S. Army Space and Missile Defense Command and U.S. Army Space Command got a new frontline leader of sorts Monday.

Colonel Richard V. Geraci received his first star when Lt. Gen. Joseph M. Cosumano, Jr. promoted him to brigadier general at Peterson Air Force Base. Cosumano commands SMDC and ARSPACE. Geraci is the deputy commanding general for Operations of SMDC and the DCG for ARSPACE.

"I think we all know that to get to the position that Rick is about to assume, it takes a family affair," Cosumano said. "Today's promotion is a story written many, many times for every family no matter what rank a soldier's promoted to. We're just using different names and today it happens to be the Geraci's, a very deserving family."

Kathy—Geraci's wife of 28 years—pinned a star on one shoulder while Lt. Col. (retired) Vincent and Shirley Geraci pinned on his other star. Army Sgt. Darren Haynes, unfurled the general officer flag honoring his father-in-law, the first Geraci family member to obtain flag rank.

"Clearly, the best decision I made was to marry Kathy," said Geraci. "She has always been the foundation of our family, always there for the children and me, always there for the soldiers and their families."

"In 1975, he began his career as an air defender," Cosumano said. "There is not any single air defender general officer who has the operational experience that Rick Geraci has. His complete adult life has been dedicated to air defense operational jobs for the U.S. Armed Forces."

Traditions are an important aspect of general officer promotions. The 18<sup>th</sup> century European custom including the drumbeat of ruffles and the bugle call of flourishes repeated

three times honored the senior officer as Cosumano and Geraci entered the ballroom.

The history of the general officer belt dates back to World War I when all Army officers wore brown belts with interlocking brass eagle plates. They wore the belts in garrison to hold their sabers. In 1943, the Chief of Staff of the Army reintroduced the belt for general officers to carry their side arms.

This ties into another tradition—presentation of the general officer pistol. Although Geraci was issued his 9mm M-9 earlier when in promotable status as a colonel, its history was highlighted during the ceremony.

The significance of the general officer flag is set in the 19<sup>th</sup> century when divisions and brigades used flags to identify their battlefield commanders. This tradition has evolved

to indicate when flag officers are present.

Geraci's promotion marks a transition point for the command and the Army.

Since Army Space Command was formed April 7, 1988, Geraci is the first to fill a deputy commanding general position for ARSPACE, overseeing day-to-day operations of the command here. With his promotion, Geraci is the first to wear a star while serving in it.

"Generals are selected to provide leadership, but they exist because there are soldiers—soldiers who represent every city, state and territory, and every ethnic and religious group in our country," Geraci said. "Our country asks these soldiers to accomplish missions in the name of national security and freedom. Generals are about taking care of soldiers and accomplishing the mission."



(U.S. Army Photo by Sharon L. Hartman)

Kathy Geraci (left), wife and Shirley Geraci (right), mother, pin a star on each shoulder of Col. Richard V. Geraci as his father, Vincent Geraci (far right) watches.



(Photo by Becky Proaps)

## Command Organization and Family Days celebrated with rain and sun

Several Space and Missile Defense Command facilities celebrated Organization and Family Days in August.

Nearly 100 employees and family members from headquarters enjoyed a day in the sun at Virginia Highlands Park in Arlington. Events included soccer, badminton, egg toss, horseshoes and good food.

The entire HELSTF family participated in an Organization/Family Day on a warm sunny day in southern New Mexico. Family and friends toured HELSTF facilities, enjoyed water balloon tosses, a dunk tank, and a lunchtime barbeque.

Huntsville employees planned a full day of food and sporting events, but Mother Nature sent a heavy rainstorm instead. Nonetheless, the truly diehard employees gathered in a shelter and enjoyed good food and companionship.

(Upper left) Colonel Mike Lavalle and his son Mike hit the hoops in Huntsville's rain shelter. (Upper right) HELSTF family members participate in a water balloon toss. (At right) Major Charles Wells spots his son Charles on the jungle gym in Virginia Highlands Park.



(Photo provided by Larry Brooks)

