



The Eagle

Vol. 6, No. 9 Published in the interest of the U.S. Army Space and Missile Defense Command September/October 1999

Army recommended as lead service on land-based national missile defense

by Mike Biddle
Arlington, Va.

The Joint Requirements Oversight Council, or JROC, has recommended that the Army be designated the lead service for the land-based National Missile Defense, or NMD, system.

The JROC—which consists of the vice chiefs of the services and is chaired by Vice Chairman of the Joint Chiefs of Staff, Gen. Joseph Ralston—made the recommendation in a Sept. 15 letter to Jacques Gansler, Under Secretary of Defense for Acquisition and Technology.

In the letter, Ralston said the JROC met Aug. 30 to “discuss assigning a lead service for land-based NMD.” It went on to recommend the “Army be designated as lead service and user representative for the land-based NMD system.”

The JROC also recommended that the Army be granted operational requirements document approval authority for the land-based NMD system issues “that are not specific key performance parameter requirements.”

In addition, the letter states that the

Army would chair an executive committee “to resolve land-based NMD system-level operational requirements and issues associated with cost as an independent variable [or CAIV]. However, CAIV trades or issues that impact the capabilities of NMD elements with other missions must be elevated to U.S. Space Command for resolution.”

The JROC letter also states that “U.S. Space Command will continue to have capstone requirements document authority of all NMD systems. In this role, U.S. Space Command ensures compatibility of those systems that will make up the NMD system.”

“The JROC will retain the option to designate the Air Force and/or Navy as lead service(s) for future aerospace and sea-based NMD systems.”

“In its role as the lead service for land-based NMD, the Army would be responsible for integrating the supporting Services Title 10 functions into a single, coordinated approach that enables programmatic decisions and timely fielding of the NMD system.”

(See *Lead Service*, page 3)

Two major Army commands coordinate, integrate NMD

by Mike Biddle
Arlington, Va.

On Sept. 2, the commanding general of the U.S. Army Training and Doctrine Command approved and signed the charter to establish a TRADOC System Manager, or TSM, for national missile defense.

The office will be located at the U.S. Army Space and Missile Defense Command’s headquarters in Arlington, Va.

The NMD TSM office was proposed by SMDC commanding general, Lt. Gen. John Costello, to establish a dedicated capability to provide intensive, total system management and integration of all Army doctrine, training, leader development, organization, materiel, and soldier products associated with the land-based NMD system.

The establishment of the NMD TSM office will help ensure the Army is properly postured to support a potential decision next summer to deploy

the NMD system. SMDC is the Army’s specified proponent for NMD.

Initially, the office will be headed by Col. Robert Billings, formerly the director of SMDC’s Force Development and Integration Center.

“This is an important decision by the Army’s leadership because it recognizes the critical nature of this joint program, as well as the fast track we are on to achieving an initial capability,” Billings said.

“By establishing an NMD TSM office, the Army has adopted a proven approach for coordinating and integrating all Army NMD development and fielding efforts.”

“Given the recommendation to designate the Army as lead Service for the land-based NMD system, our next step is to expand the capabilities of the TSM office to be ready to execute our joint management and integration responsibilities for this program,” he said.

“We will work closely with US Space Command and the Air Force to establish the necessary joint capabilities and procedures.”



Army graphic

Space and Missile Defense ‘Solutions’ on Display at the U.S. Army Space and Missile Defense Command’s exhibit. Visit the Cotillion Foyer to get a look at the battlefield of the future. The exhibit will be filled with demonstrations of many of the latest innovations for soldiers to fight and win on the battlefields of the future. (See related stories inside, pages 11-14.)

Commanding General's Comments

I think it can be stated without too much exaggeration that 1999 has been one of the best ever for those of us in the space and missile defense business in general, and for SMDC in particular.

Institutionally, early this year the command's leaders saw the need to engage all parts of SMDC in a comprehensive strategic planning effort to better define our goals and ways to achieve them. The process is dynamic in that once it is implemented, it will become a continuous, systemic effort to assess the goals and strategies needed to synergistically achieve optimum results in a fast-changing world.

As much effort as SMDC has put into changing the process of how it does business, there has been an equal amount spent on producing bottom-line products.

In January, SMDC published the first Directed Energy Master Plan that charts the potential uses of directed energies such as lasers on future battlefields. It has been so well thought of that the FY00 Authorization Conference Report requires the Secretary of Defense to develop a unified DoD laser master plan and for the Secretary of the Army to initiate a development program for solid state laser technologies. Noting that solid state lasers, because of their compactness, lower weight, and less volatile power sources, offer great potential for a number of military applications, the report also authorizes an increase of \$20 million to carry out the Army's solid state laser technology development program.

In February, SMDC, together with the U.S. Army Training and Doctrine Command, or TRADOC, the National Reconnaissance Office, and the Joint National Test Facility conducted the highly successful Space and Missile Defense Game III. The game is part of TRADOC's continuing Army After Next wargame series, which is helping the Service plan the changes necessary to remain the world's greatest ground force in future conflicts. Space and Missile Defense Game III raised more questions than answers, which is the first step toward grappling with the whole range of implications of how space could affect warfare in the future.

Also that month, SMDC's Joint Tactical Ground Station, or JTAGS, was used by Army Space Command troops in an international exercise in Europe, Joint Project Optic Windmill. Military members from the U.S., Netherlands, Great Britain, Germany, and Sweden participated in an exercise which concentrates on the combined response to the theater

ballistic missile threat. JTAGS was a big hit there. "We could not have the same results without JTAGS," said Royal Netherlands Air Force 1st Lieutenant Bart van der Graaf, one of the original designers of the exercise.

March was an extremely productive month for SMDC as its Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System, or JLENS, for the first time provided a link between an offshore Navy Aegis cruiser and a land-based Patriot air defense system at Fort Stewart, Ga. JLENS, which is a sensor attached to an aerostat that provides over-the-horizon surveillance and tracking of cruise missiles, was participating in a joint exercise sponsored by the U.S. Atlantic Command.

The only cruise missile defense system that has gotten past the "viewgraph" stage of development, JLENS was also restructured this year programmatically to provide stability to what promises to be a very effective system.

Also that month, another first was achieved when Patriot Advanced Capability-3, or PAC-3, achieved its first intercept of a ballistic missile. PAC-3 is the Army's lower-tier solution for land-based Theater Missile Defense. Besides providing effective defenses for U.S. joint ground troops, PAC-3 is also the system to be used in the international effort to create a maneuverable corps-level missile-defense system, the Medium Extended Air Defense System. Also, the target that was intercepted by PAC-3 was the Hera, another SMDC product.

Springtime saw several other very important efforts, including the vital support provided by ARSPACE soldiers and civilians during Joint Task Force Hawk in the conflict in the Balkans. ARSPACE brought space assets to ground troops in a variety of ways that helped resolve that complex situation very successfully.

During this season, SMDC also succeeded in having Functional Area 40 designated as a new Space Operations specialty for Army commissioned officers.

Both these efforts are extremely important. The first shows the current value of ARSPACE soldiers bringing space capabilities to ground warfighters in real-world contingencies. Concurrently, the establishment of FA40 will develop better "space soldiers" to handle the increasingly sophisticated space systems that will be employed in future conflicts.

In June, JLENS, JTAGS, SMDC's Space and Missile Defense Battle Lab, and the command's Space Technology Directorate participated

in Roving Sands '99, the largest multinational air and missile defense exercise in the world, held annually over a wide area in Texas and New Mexico. Many lessons were learned there that will aid missile defenders in the future.

Also that month, the Tactical High Energy Laser, or THEL, achieved "first light" at the TRW Capistrano Test Facility in California. TRW, which is working under an SMDC contract, conducted the test of THEL's advanced concept technology demonstration laser subsystem to demonstrate its end-to-end capability.

The test also demonstrated the laser optical control of extracting a high-energy laser beam. THEL is a high-visibility joint U.S./Israeli project to develop a tactical laser for use by Israel against threats such as short-range rockets. Soon the THEL will begin testing at SMDC's High Energy Laser Systems Test Facility, the premier laser facility in the country, at White Sands Missile Range, N.M.

The summer also proved to be an extremely eventful time for Army missile defense and space. THAAD, the Army's upper-tier TMD solution achieved two consecutive spectacular intercepts in July and August. Together with the earlier PAC-3 intercept and a recent second PAC-3 intercept in September, THAAD proved the critics wrong who said hitting a missile with another missile was technically impossible.

THAAD's success has prompted the Under Secretary of Defense for Acquisition and Technology to direct that the THAAD program be moved into the next stage of development, taking it one step closer to finally fielding a system that will protect ground warfighters against missile threats.

In this same timeframe, the command published a Theater Air and Missile Defense Master Plan that lays out the roadmap for where the Army needs to go in TMD and how it plans to get there. This is critical to ensure that all the TMD systems are being developed in a coordinated, thought-out way that ultimately provides an effective, multi-tiered system.

As much as has been accomplished this year so far in space and missile defense, lots more could be achieved by the end of the year. At *The Eagle's* deadline, the Army is awaiting a DoD decision that could make it the lead service for ground-based National Missile Defense, or NMD.

In addition, SMDC has had its proposed charter approved for setting



Lt. Gen. John Costello

up an NMD TRADOC System Manager's office. The NMD TSM will be responsible for coordinating and integrating Army NMD efforts, which is an essential step in the Army's effort to fulfill its responsibilities for deploying and manning a ground-based NMD, should the Nation decide to do so.

The next important step in developing an NMD occurred this month when the "heart" of the system, the Exoatmospheric Kill Vehicle, attempted its first intercept. Based on technology originated by SMDC engineers, the EKV was launched from the Kwajalein Missile Range, the foremost missile test site in the world and another SMDC asset. (See related story, page 3.)

In the arena of Space, the command is set to publish a Space Master Plan that will chart the Army's future course in an area that is becoming increasingly important to achieving Full Spectrum Dominance as outlined in Army Vision 2010, Joint Vision 2010, Army After Next, and United States Space Command Vision for 2020.

As you can see, much progress has been made in Army space and missile defense, and much more is expected in the near future. The people at SMDC and the other organizations who have helped achieve these successes should rightly feel proud of their accomplishments.

But, of course, much remains to be done.

That said, I'm confident that we in the Army who work missile defense and space issues will continue to meet the formidable challenges that remain before us so that our future joint ground warfighters remain the greatest in the world.

The Eagle ...

is an unofficial publication authorized under the provisions of Army Regulation 360-81. It is published by the U.S. Army Space and Missile Defense Command. Views and opinions expressed are not necessarily those of SMDC, Department of Defense, or Department of Army. Reader input is solicited and welcomed; however, no payment will be made for such contributions. Please direct letters and comments to:

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Lead Service

(continued from page 1)

said Col. Bob Billings.

Billings works at the U.S. Army Space and Missile Defense Command, which is the Army's proponent for NMD. He is the newly designated U.S. Army Training and Doctrine Command, or TRADOC, System Manager for NMD (see related story on this page).

"Service Title 10 functions include recruiting, organizing, supplying, equipping, training, servicing, administering, maintaining, and construction," he added.

SMDC officials point out that the Army has led the development of all

NMD-dedicated elements of the land-based NMD system—interceptor, X-band radar, In-Flight Interceptor Communications System, and site Battle Management/Command, Control, Communications and Computers, or BMC3. They also point out that the NMD-dedicated elements of the system will be manned by soldiers, principally from the Army National Guard. They note that this is an appropriate and proven role for the Army National Guard that dates back to the 1950s when Guard soldiers manned the NIKE air defense sites throughout the United States.

Should the JROC recommendation be implemented, SMDC officials emphasize that the other services would continue to

play critical roles in the development of the land-based NMD system. The Air Force would retain responsibility for the development and fielding of the Space Based Infrared System, a key component of the NMD system. Additionally, the Air Force would retain its prominent role in the development and fielding of the Upgraded Early Warning Radars and the NMD BMC3 command node to be located in the Cheyenne Mountain Operations Center. All the services would retain their traditional role in the requirements determination process.

Additionally, the Army has proposed the formation of an executive committee, involving U.S. Space Com-

mand, Army, and Air Force general and flag officer representatives to ensure all NMD user equities are fully considered in the lead service decision-making process.

This recommendation, if adopted, "would be a major step towards streamlining the decision process associated with the land-based NMD system," Billings said.

"A lead service, with user representative authority, would provide the NMD joint program manager a single point of contact to coordinate user positions and enable timely decisions in support of the program's compressed timelines," he added.

Army-developed technology a big "hit"

Exoatmospheric hit-to-kill vehicle successful again

The Ballistic Missile Defense Organization's National Missile Defense Joint Program Office announced Oct. 2 it has successfully completed the first test involving a planned intercept of an intercontinental ballistic missile target. The test took place over the central Pacific Ocean.

A modified Minuteman intercontinental ballistic missile, or ICBM, target vehicle was launched from Vandenberg AFB, Calif. at 7:02 p.m. PDT, and a prototype national missile defense, or NMD, interceptor was launched approximately 20 minutes later and 4,300 miles away from the Kwajalein Atoll in the Republic of the Marshall Islands. The intercept occurred at approximately 7:32 p.m. PDT.

The test successfully demonstrated

Army-developed "hit to kill technology" to intercept and destroy the ballistic missile target. An exoatmospheric kill vehicle, or EKV, weighing about 120 pounds, equipped with two infrared sensors, a visible sensor, and a small propulsion system, located and tracked the target, guiding the kill vehicle to a body-to-body impact with the target and resulting in the target destruction using only the kinetic energy of the collision. This "hit to kill" intercept demonstrates that a warhead carrying a weapon of mass destruction—nuclear, chemical or biological—will be totally destroyed and neutralized.

The U.S. has no active defense against a long-range ballistic missile aimed at any of our 50 states. Numerous nations are developing or seeking to acquire long-range ballistic missiles carrying weapons of mass destruction which could reach the U.S. The current NMD program is being developed to provide a defense of the 50 states in the United States against a limited missile attack from a rogue nation able to develop or acquire an ICBM, or an accidental or unauthorized missile launch from a current nuclear power.

The Department of Defense is scheduled to conduct a deployment readiness

review beginning next summer to review the status of the NMD program including potential program costs, an assessment of the ballistic missile threat to the U.S., and the status of arms reduction efforts involving Russia. After receiving the results of this review, the Secretary of Defense will make a recommendation to the President regarding whether or not to deploy the NMD system.

If the President decides to deploy, the NMD system could be operational in 2005. If it appears more development and testing needs to take place, deployment planning will continue and actual deployment would be held in abeyance.

The NMD program consists of several different space and ground based elements which are integrated to provide the means to detect a ballistic missile launch, locate it high in space, track a warhead directed at any of our 50 states, and destroy it before it can reach its intended target. The successful intercept test yesterday was the first of about 20 planned intercept tests to demonstrate NMD system technology, effectiveness and reliability over the next six years.

Another test of the EKV is scheduled to take place in the first quarter of 2000, followed by additional tests incorporating the different elements of a proposed NMD system, including the interceptor, space-based early warning satellites, ground based early warning radars, ground based X-band radars for precise target tracking, and a battle management, command, control and communications network to operate the system.

The successful intercept conducted yesterday used representatives or prototypes of these other elements in a "shadow" mode. They did not provide information to the interceptor as they would during a full system test or during an actual missile attack. The rocket motors used to launch the interceptor are test assets used for test purposes and will be replaced later in the test program by commercial off-the-shelf boosters selected by the Ballistic Missile Defense Organization last summer.

For additional information, contact Lt. Col. Rick Lehner, BMDO External Affairs, at (703) 604-3186 or (703) 695-8743.

(Office of the Assistant Secretary of Defense)

Urias gives first PEO-AMD Town Hall meeting



(Photo by Connie Davis)

by Marco Morales
Huntsville, Ala.

About 200 military and civilian employees recently attended the first Town Hall meeting of the new Program Executive Officer – Air and Missile Defense, Col. John Urias.

Urias, who is on the promotion list for brigadier general, opened the meeting by stating he's a "firm believer in town hall meetings."

"I want you to know, up front, that my initial impression of this PEO, and all the players I've interfaced with thus far, is extremely positive," Urias said. He asked everyone in attendance to fill out a blank, three-inch by five-inch card with feedback he'll use to analyze comments from PEO employees.

"I need to know where I need to focus my time in this PEO," he said. "You can leave that card blank – and that's not going to do me any good. Communications is a force multiplier and I want to communicate to you how I'm going to operate."

Urias said that his utmost priorities include people

first with the mission as a follow on. He then said that oneself and one's family forms a balance for a unit's people and mission. He also said that being honest helps to build and solidify professional relationships.

"Integrity is non-negotiable. If you have bad news, get it to me as soon as possible because it won't get better with age," Urias said, adding that there are two types of errors a person can make – commission and omission. "And only one is forgivable," he said.

Urias said he wants his employees to "understand the realities" including external realities, internal perceptions, the three ups and three downs, and to ask, "if you could change anything, what would it be?"

He said he wants to build on the PEO-AMD's successes like the PAC-3 moving into low rate initial production and fielding, and the Theater High Altitude Area Defense system going into the engineering, manufacturing and development phase.

"I want to use a 'system of systems' approach on all of our developmental programs," Urias said. "Interoperability is important." Urias said he likes the idea of empowering subordinates to carry out objectives, as long as those employees are doing the right thing and are performing as team players.

Col. (Promotable) John Urias

September/October 1999

Chemical engineer specializes in explosive testing



Pat Vittitow stands in front of a PAC-3 rocket motor after a bullet impact test. Vittitow, a chemical engineer, works in the command's Safety Office, Huntsville, Ala., and specializes in explosive testing to determine the hazard classification of targets and missile defense systems.

(Courtesy photo)

by LuAnne Fantasia
Huntsville, Ala.

Pat Vittitow loves her job. She specializes in explosive testing. In other words, she gets to blow up stuff!

As a chemical engineer in the command's Safety Office, it is Vittitow's job to decide the hazard classification of missile defense systems.

"We move a system component to the field and shoot bullets at it, set it on fire or detonate it, to observe its reaction to unplanned stimuli, or its reaction to an unforeseen accident," Vittitow said. "Then we can determine its hazard classification, which determines how we store the system or transport it." Federal law requires these classifications, she added.

Vittitow said these insensitive munitions assessments (tests and reports) are approved by Department of Defense, then accepted by Department of Transportation, so that program offices such as the Targets, Patriot, THAAD and National Missile Defense can transport their explosives by any means, all over the world.

"We grant interim hazard classifications based on approved sub-scale test results, but when a system is ready to be fielded, full-scale tests are required for final hazard classification and insensitive munitions certification," she said.

Before coming to the command in '92 and while working as an Army Hazard Classifier in Charlestown, Ind., Vittitow saw the hand-writing on the wall, and began to get involved in emerging DoD requirements for insensitive munitions assessment, or IM.

"This command already had hazard classification, and saw DoD requirements for IM assessment on the horizon," she said. "SMDC was proactive in meeting that requirement and as a result, we are now the only organization in Department of Defense to have both in one house, which allows for good synergy between the two."

Minimizing costs

In 1994, Vittitow said SMDC's Safety Office developed the first generic, cost-effective but thorough plan for hit-to-kill missiles.

"Full-scale test protocol for both hazard class and IM demands about 37 assets, (or missiles), at about two million dollars each, for the smaller ones. Obvi-

ously, we couldn't do business in the routine manner at that expense," she said. "So, in 1994, we developed a generic plan by combining some test protocols, and requiring specific sub-scale tests and a Threat Hazard Assessment to bring the number down to around 10 missiles per program.

As the generic plan was applied to specific programs such as PAC-3 and THAAD, we have realized a greater savings where we are testing the equivalent of four missiles for PAC-3 and five for THAAD.

"This gave us a significant savings in the reduction of the number of assets we had to come up with, and now our test plans are being used as a "go-by" by DoD and NATO's insensitive munitions council."

Vittitow has also briefed, at their request, the plan to the Royal Military Academy and Munitions Ordnance Board in Great Britain, as well as the German National Safety Council and the Australian Defense Ministry.

"We support the command, work coast-to-coast, North to South, and work jointly across the service lines in DoD," said the nerve agent, slash, explosive testing, slash, 19-year civil service veteran.

"I enjoy my work. It's fun."

Expert says missile defense systems discourage threats

by LuAnne Fantasia
Huntsville, Ala.

As director of Defense Research and Engineering, Dr. Hans Mark opened the 2nd annual Army Space and Missile Defense Conference in late August with a voice of experience.

"The best war is one we don't have to fight," he said. "That should be the message we send to threatening countries."

Mark said it takes all three—the Army, Navy and Air Force—missile defense systems to send that message and to discourage current threats.

"Today's threats are real; including possible attacks on Europe from North Africa and the Middle East, and attacks on Japan and Taiwan from China," he said, "and we need all three branches to defend those populations.

The challenge is to develop a comprehensive defense against ballistic missiles that discourages people who are now building these things from attacking; a constant reminder that they will not achieve what they have in mind."

The collapse of the Soviet Union may have removed the looming monolithic threat to the United States, but new areas of concern have popped up, Mark said. "The key to preventing enemy attacks is to create a foolproof defense."

He gave a quick chronicle on Air Force, Army and Navy anti-ballistic missile beginnings. "The Air Force started their airborne lasers in '96, but the technology started in '67. We asked 'can we put a laser on an airplane and shoot down missiles with it?' Then, in '83 we disabled five sidewinder missiles, and demonstrated total fire control." By 2006, the Air Force is expected to have three 747s outfitted with lasers that can

shoot down incoming missiles, he said.

Can we convert enough Navy AEGIS ships (originally designed for fleet defense) to a ballistic missile defense role to be effective? Mark said the Navy demonstrated a shoot-down from White Sands, N.M., in January '97, and is ready to show they can do it from sea. To date, two of the 50 AEGIS cruisers have been converted, and will start exercises to test weapon systems for intercepting ballistic missiles next year, according to Mark.

"With three-fourths of the world population living within 100 miles of the ocean, we need to be able to move anti-ballistic missile defense around coastlines," Mark said.

And finally, with the Army's Homing Overlay Experiment [forerunner to the ground-based interceptor, or GBI, and the oldest of the proven technologies, according to Mark], 1984 brought

a successful intercept of a warhead launched on a Minuteman missile from Vandenberg, Calif.

"And, in '93, the Army succeeded with three of four hit-to-kills," Mark said, referring to ERINT, the forerunner of the Patriot Advanced Capability-3, or PAC-3. The Army has had successes this year with both its PAC-3 and Theater High Altitude Area Defense, or THAAD, anti-missile systems.

"So, you can see the importance of interoperability," he added. "Joint command and control...that's the point of this conference. Eventually, the name of the game is to make this work as a single system—that's interoperability."

"You can't solve the problem sitting in a room in the Pentagon or in Huntsville. Interoperability comes from experience. By all means, do the thinking, but don't think that's how things will actually work out."



(Army photo)

Army Col. Mary Fuller (right) took command of the JLENS Project Office in late August. Outgoing Project Manager, Col. Herb Carr (left) is now assigned as the Deputy Director, U.S. Army Missile Research, Development and Engineering Center at Redstone Arsenal, Ala. Brig. Gen. Steven Flohr (center), deputy commanding general of SMDC, presided over the ceremony.

It's not easy being first

by **LuAnne Fantasia**
Huntsville, Ala.

"It's a tough program. It's tough because it's research and development, and cruise missile defense is a new mission area. And, it's tough to be first," said Brig. Gen. Steven Flohr, deputy commanding general.

"So, for three years, Col. Herb Carr has been there, done that," Flohr said in an August ceremony before Carr left as project manager for the JLENS. Carr, who became the program's first project manager in 1996, is now deputy director of the U.S. Army Missile Research, Development, and Engineering Center at Redstone Arsenal.

The Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System, formerly known as the *Aerostat*, detects enemy cruise missiles and provides a single integrated picture of the theater missile defense battlefield. It took its new name two years ago after Carr explained the elements of the project to the leadership and the name changed, according to Flohr.

"Herb is probably the first project officer who got to name the program," Flohr said. "That Aerostat name had to go because we are not into balloons," he quipped.

"This is truly a joint project, led by the Army, with the other services' support," Flohr said, "so it is a tough assignment. It must interface and it must be interoperable."

Chartered only three years ago, the JLENS was recently designated as an Acquisition Corps Category II program.

"When I walked in three years ago," Carr said, "there was no project office. Then, one of the first things to happen was a major budget cut. So we redesigned, and it's amazing that we came out so well with only \$15 million."

Carr, a 27-year veteran, has a long military history with the Patriot, Hawk, Vulcan and Nike Hercules weapon systems in Germany, Korea and here at

home. His acquisition management experience includes service as the deputy chief of staff for National Missile Defense and as product manager for the Extended Air Defense Command and Control.

"But today, life is good. I have no briefings to give and no trips to take," Carr joked with the group. "Mary, you have a great program office, a great staff and great contractors," he said to his successor, Col. Mary Fuller.

There's food back there

Colonel Mary Fuller, a 22-year Army officer of the Signal Corps, comes to the job with experience as a product manager, and as a recent graduate of the Army Senior Service College Acquisition Corps Fellowship Program at the University of Texas, Austin.

"This day certainly is a milestone for me—getting promoted and taking over as the project manager for JLENS," Fuller said. "I congratulate Col. Carr as the first project manager for this program, because being first is never easy. And, I know I have big shoes to fill."

Fuller said Huntsville is a center of excellence for the Army and that teamwork is not just a buzzword with her. "Whether you are a civilian employee, active duty or a contractor, I look forward to meeting and working with you, and I look forward to you helping me become a JLENS expert," she said.

"I believe in taking care of people, and partnering with industry."

She said she never imagined accepting the challenges as a project manager and being promoted to colonel in one day. "Twenty years ago, I didn't even know what a project manager was. A lot of good people have helped me along the way, but I won't go into details because there's food back there," she said.

"We have new technologies, and young, smart soldiers. We owe them the best, and I know JLENS will be part of the Army's war chest."

Voss leaves Army, heads for space

Story and photo by **Ed White**
Colorado Springs, Colo.

Proudest personal moment—
"When my daughter was born."

Proudest professional moment—
Every space flight, and "to be able to see the earth in its entirety from my space suit while outside the space shuttle."

"I love the Army. I've loved every minute of being in the Army," said Col. Jim Voss in Houston, Texas, on the eve of his retirement from active duty. Voss' service to the Army and the nation have taken on a unique and special flavor over the last 15 years. He is one of a select few soldiers chosen by NASA to be astronauts.

But Voss started his Army career literally in the trenches. "I enjoyed my life as an infantryman just about as much as I have enjoyed my life as an astronaut," Voss said. "I found it very satisfying." He spent the early part of his career sitting on the border of the divided Germany eyeballing the might of the Soviet army on the other side. "I thought the first Russians I would see would be over the turret of a .50 caliber machine gun on my armored personnel carrier," he said.

However, the world as he knew it in those days past has changed and Voss has changed with it. One of his specialties now is working with the Russian cosmonauts. He has learned to speak, read, and write Russian fluently. And the first Russians he got to know were cosmonauts who took him to Moscow for a sightseeing tour when he was stationed at Star City, Russia, for cosmonaut training. "This was much better than the way I envi-

sioned seeing the Russians when I was a young officer," Voss added.

Life for astronaut Voss has so far included three space shuttle flights and an Extra Vehicular Activity, or EVA. On his most recent flight, Voss was asked to test a new space suit and was subsequently strapped to a small platform and got to spend a while outside the shuttle, literally watching the world go by. His EVA lasted more than six hours and included testing the space suit modifications as well as testing and evaluating tools and procedures to be used in the assembly of the International Space Station.

According to Voss, per diem in space is \$2 per day, "And NASA makes us file the vouchers." However, he added, the astronauts do not get frequent flier miles.

Voss attributes his success to three factors in his life. "I had a good family, good mentors, and I always tried to work hard and do a good job." So, whether he was facing the Soviet Army from atop an armored personnel carrier, learning to speak, read and write Russian, or going through astronaut or cosmonaut training, Voss has always held to his standard of excellence. And, of course, he has been rewarded for his success with three past flights and one coming up soon.

Deciding to retire from the Army was not easy for Voss. But it was time. He remains a NASA astronaut with another flight scheduled. "The next flight will be sometime next summer. I will go up to the International Space Station with a crew and spend six months building and improving the structure."

So, while Jim Voss is no longer on active duty, he is still serving the nation in his totally unique fashion. He is still leading from the front.



Pictured with his daughter Kristie (left) and wife Suzan, Army Astronaut Col. Jim Voss retired from the military recently but will remain a NASA astronaut. Voss is scheduled to go back up to the International Space Station next summer, and spend six months with the crew building and improving the structure.

Press Releases

by Gerda Sherrill
Huntsville, Ala.

Hera target successfully blazes New Mexico skies

A Hera target system successfully flew at White Sands Missile Range, N.M., in support of the Patriot Advanced Capability, or PAC-3, Developmental Test 3 flight test in mid-September.

The Hera target system is developed by this command for the Ballistic Missile Defense Organization. It is a tactical ballistic missile target typically used for test and evaluation of BMDO interceptor systems. The Hera target flown for this test was the Block IIC Hera configuration with a modified ballistic reentry vehicle with a submunition payload.

The Hera target was flown from Launch Complex 96 at Fort Wingate, N.M., reached an altitude of 92.5 kilometers and flew 350.1 kilometers down range in 406 seconds. The target missile flew a northwest to southeast trajectory to White Sands Missile Range to support an endoatmospheric observation of the separated Ballistic Reentry Vehicle by the PAC-3 seeker.

Prime contractor for the Hera targets program is Coleman Aerospace Company of Orlando, Fla., supported by principal subcontractors Space Vector Corporation of Fountain Valley, Calif., and Aerotherm Corporation of Mountain View, Calif. The Space and Missile Systems Center of the U.S. Air Force provides the booster motors.

At SMDC, the program is managed by Theater Targets Product Manager Lt. Col. James D. Matthewson, Jr., in the Ballistic Missile Targets Joint Project Office. Col. James Cambren is director of the project office.

TES scheduled to be fielded this month

The U.S. Army's Tactical Exploitation System, or TES, participated in a joint experiment at Nellis Air Force Base, Nevada, mid-August through early September.

The Joint Expeditionary Force Experiment, or JEFX '99, is an initiative sponsored by the Chief of Staff of the Air Force, combining live-fly forces, live-play ground forces, simulations, and technology insertion into a seamless warfighting environment to test and evaluate new and promising technologies and processes.

The Army TES—developed by this command's Army Space Program Office, or ASPO, Fort Belvoir, Va.—participated to demonstrate

joint interoperability and promote concept development between Army and Air Force ISR (intelligence, surveillance, and reconnaissance) systems.

The TES is one of the Army's key ISR systems for the 21st Century. It is a modular, scalable system mounted on HMMWVs, with C-130 drive-on/drive-off capability, providing the deployed tactical commander with assured receipt of all-weather, day and night intelligence from national, theater, and tactical platforms. TES receives, processes, exploits and disseminates intelligence through all phases of military operations, and is capable of supporting joint and combined operations as well as supporting early entry operations.

TES participation in the recent joint exercise promotes DoD's move toward joint interoperability and increasing commonality between service intelligence processing systems.

The Navy has acquired TES components as part of its ISR architecture, and the first complete system will be fielded to 18th Airborne Corps during October '99.

Command flies payload on Minuteman III flight test

A specialized set of National Missile Defense target payloads designated as Radar Credible Target-1 was successfully launched from Vandenberg Air Force Base, Calif., in August.

The RCT-1 mission was conducted as an associated operation on the Minuteman III Operational Test Mission GT-170GM. The RCT-1 target mission used the MM III as a delivery system. RCT-1 targets occupied one of the three RV seats on the MM III bus or post boost vehicle. The RCT-1 target mission was managed by the Strategic Targets Product Office within the Ballistic Missile Targets Joint Project Office of the U.S. Army Space and Missile Defense Command Acquisition Center in Huntsville, Ala.

The RCT-1 target mission was designed and conducted as a low cost NMD (national missile defense) mission to collect critical data for the development and testing of surveillance, acquisition, tracking and discrimination algorithms for the Ground Based Radar – Prototype, or GBR-P, located on Kwajalein Island in the Marshall Islands. RCT-1 was designed to satisfy NMD test needs associated with the GBR program in general, and the GBR-P in particular.

RCT-1 also served as a precursor experiment to the NMD Integrated Flight Test-3 scheduled for October '99.

The NMD portion of this flight test was known as Risk Reduction Flight-6. The GBR-P is an NMD testbed radar with a large (105 square meter aperture), X-band, phased array radar with a 2000 km single pulse detection range and simultaneous electrical/mechanical scan and tracking capability.

The GT-170GM operational test flew a nominal MM III trajectory that originated in California at Vandenberg Air Force Base and terminated in the Marshall Islands at the Kwajalein Missile Range. In order to avoid interfering with normal conduct of the MM III OT, the RCT-1 target set was deployed from the MM III bus as a single unit, or target stack. Individual targets were then deployed from the RCT-1 target stack after release from the MM III bus. The RV used on RCT-1 survived reentry while no other RCT-1 targets survived the impact.

The USASMDC RCT-1 target mission team consisted of representatives of the Strategic Targets Product Office, NMD Ground Based Elements Office, Sandia National Laboratories, and Military Technology, Inc.

TCMP-3A deployed to Kwajalein

The Airborne Surveillance Testbed aircraft was deployed to Kwajalein Missile Range in early September to support Theater Missile Defense Critical Measurements Program Campaign-3 data collection mission.

The AST had a stopover at Maui, Hawaii on its way to Kwajalein, and another stopover at Hickam Airforce Base, Hawaii on its return flight one week later. The AST gathered infrared signature and track data on the TCMP-3 Target Vehicle and its separately deployed objects along a trajectory from Wake Island to impact East of Kwajalein Atoll.

The AST sensor platform is a Boeing 767 aircraft modified by the addition of an 86-foot-long cupola which houses a Raytheon long wavelength infrared sensor. The AST is funded by the Ballistic Missile Defense Organization and managed by this command. It collects and processes infrared target data on ballistic missiles. Operating at altitudes above 43,000 feet, the AST conducts long-range detection, tracking, and infrared signature characterization of ballistic missiles in all phases of their flight—from boost through reentry.

The sensor has advanced wide field-of-view optics and a focal plane array that contains more than 30,000 cryogenically cooled long wavelength infrared silicon

detector elements. Extensive signal and data processing is performed in real time to accommodate the large volume of focal plane array data.

The AST has completed over 70 successful data gathering missions to date, and continues to provide valuable infrared phenomenology data and a unique tested capability for BMDO and the command.

Suborbital rocket launch is successful

The Ballistic Missile Defense Organization and this command announced the completion of a suborbital rocket launch and successful extensive data collection under the Theater Missile Defense Critical Measurements Program, or TCMP. The flight test took place in early September, over the mid-Pacific Ocean.

A booster configuration consisting of a two stage SR19 with two multiple launch rocket system assist motors was launched from Wake Island to the U.S. Army Kwajalein missile range. The payload included a reentry vehicle, two science experiments, and a Fly Away Sensor Package, or FASP, as part of a mission designed to collect radar and infrared data to address critical system level issues for missile defense elements.

The objective of the TCMP campaign is to collect radar and optical data on a variety of possible tactical ballistic missile threats, information that would, in turn, be used in the design of missile defense interceptor and sensor systems. The program will provide data immediately useful to Major Acquisition Defense Programs such as THAAD, PATRIOT, Navy Theater Wide, and Navy Area Defense.

The TCMP program has had four previous (and highly successful!) flight tests: Jan. 28, 1993; July 15, 1996; Feb. 22, 1997; and March 1, 1997. These flights are part of an ongoing effort to provide experimental data needed to bolster the nation's theater missile defense. Additional TCMP flights are planned in the future.

The test was managed and conducted for BMDO by SMDC in Huntsville, Ala. Support was provided by the U.S. Air Force Space and Missile Test and Evaluation Directorate, Kirtland Air Force Base, N.M., and the Lincoln Laboratory of the Massachusetts Institute of Technology. Orbital Sciences Corporation of Chandler, Ariz., was responsible for the integration and launch of the booster. Range coordination and safety functions were provided by the U.A. Army Kwajalein Missile Range.

Full spectrum dominance: what does it mean?

by LuAnne Fantasia
Huntsville, Ala.

Beijing rattles its sabers at Taiwan for asserting independence, and Washington rattles the sabers at Beijing.

Refugees from Kosovo need a country to help them flee their war-torn land, and a country to befriend them on the other side.

Whether a peacekeeping operation or all-out war, the United States armed forces have the potential to be there. And that, according to Brig. Gen. Steven Flohr, is why we must be able to provide full-spectrum dominance to the rest of the military; to ensure the superiority of the armed forces.

The deputy commanding general told officers and

senior civilian leaders in a recent professional development gathering that this command must be prepared—from hand-held pagers to a ground-based radar—to support both kinds of contingencies.

“The national military strategy is still *shape, respond and prepare*,” Flohr said, “and full-spectrum operations include everything from low-intensity (humanitarian assistance and peacekeeping), to all-out warfare. You sometimes have to do a lot of training; sometimes very little training, but full-spectrum dominance is what we, as a major Army command, must always be able to give.”

Flohr said humanitarian needs will continue, and although the likelihood of war is about zero, “You must be prepared for the whole spectrum—the full scale, because full-spectrum operations readiness includes supporting the operation and the recovery from it, as

well as training for the next operation.”

In his Intent Statement this summer, Army Chief of Staff, Gen. Eric Shinseki said “Our non-negotiable contract with the American people is to be a warfighting Army—persuasive in peace, invincible in war. ... We will aspire to be the most esteemed institution in the Nation, the most respected Army in the world, and the most feared ground force to those whose actions would threaten the vital interests of the United States.”

Another of Shinseki’s intentions is for Army heavy divisions to become more deployable, and light divisions more lethal, Flohr said.

“Of course, homeland defense is a critical Army mission, and we’re still trying to sort out what that is beyond national missile defense,” he said.

Lumer & company lead the way with “Zero \$\$\$ contracting”

by LuAnne Fantasia
Huntsville, Ala.

For an office that seems to create win-win deals, it’s not a news flash that the command’s contracting office has earned four high-roller awards in the past 12 months: The Hammer Award; a Secretary of Defense Team Excellence Award; and two (*count ‘em, two!*) Secretary of the Army awards for Excellence in Contracting.

But wait, there’s more. Mark Lumer’s office has now initiated two contracting concepts that promise to cost the command no money. *Zero* dollars.

“We call the first concept *foot-in-the-door* contracting,” Lumer said.

“Say you have an unfunded requirement, such as a simulation study. We offer the job out to industry, but they spend their own dollars to do the study.”

Sounds too good to be true? Lumer explained several huge benefits to be gained by the contractor other than revenue. “The company gets to be the prime contractor with us, and build a ‘past-performance’ record,” a kind of portfolio required, by law, to bid on government contracts.

“This helps the company get future business,” Lumer added. He said foot-in-the-door contracting also allows companies to demonstrate their expertise to the command, particularly in areas where the government may not be aware of the company’s capability.

“If a company has done business with us in simulation, but has no train-

ing experience with us, they can prove their training capabilities to us through this program,” Lumer said. He added that companies would also benefit from access to DoD information databases, security clearances and approved purchasing system use.

“It’s a win-win situation for all of us,” he said. “We get the work done without a lot of costs, and industry gains the experience and gets their foot in the door. It stretches the command’s resources and brings new, small business into the government arena.”

Lumer said the initial response from industry has been overwhelming, with some very positive responses. “We’ve had a few surprises, too. Some established companies have jumped on the band wagon ready to show us new capabilities.”

The second initiative Lumer’s office

is working involves exchanging the commercial rights of major efforts.

“For example, if a program gets zeroed out by Congress and we [the command] can’t finish it, a company can buy the commercial rights from us,” Lumer said. “We’re basically contracting without dollars, but in exchange, the company gets commercial rights to the equipment.”

Government contracts have an intrinsic value to industry without any dollars, Lumer said. “A contract with the government gives that company credibility.”

He said the command is moving toward being more efficient business managers, “by using resources more efficiently, and by recognizing that government contracting has a value in and of itself.”

Matrix opportunities: growing new leadership for the future

by LuAnne Fantasia
Huntsville, Ala.

Because space and missile defense technology is born, developed, and turned out for production, it’s not always feasible to preserve the large workforce needed to fulfill that life cycle.

“Program managers’ requirements change according to their stages,” Col. Larry Anderson said. Anderson, the deputy director of the command’s Space and Missile Defense Technical Center, was recently designated as matrix manager for SMDC.

Webster’s dictionary defines *matrix* as “something within, or from which something else originates,” and in SMDC circles, it means *borrowed*.

“The Army gives program managers a small corps of personnel, but the rest of their manpower comes from matrix personnel,” a concept unique to the Acquisition Corps workforce, according to Anderson. “We are the Army-designated supplier of matrix employees for the PEO [program executive office].”

“These are not vacancies,” he stressed. “We don’t compete jobs. The employee’s slot is actu-

ally loaned, therefore moved, to the new site for as much as three years.”

Anderson said this command provides about 230 employees to internal program offices—internal PMs, JLENS and the Ballistic Missile Targets Joint Project Office—as well as the Theater Air and Missile Defense Program Executive Office. The 170 people matrixed to the PEO work in THAAD, JTAGS, MEADS, and the PEO office itself.

“We had always tried to let home sections and individual directors manage their matrix needs, but it is a lot of issues and (sometimes) confusion for too many people,” Anderson said. “We had little pools of matrix people. So we went with one manager, with hopes for better communication and better service to our customers.”

The Army Acquisition Corps encourages mobility among its workforce, but that doesn’t automatically mean a geographical relocation, Anderson added. “The real contribution comes in the employee’s second and third year, when he or she becomes fully knowledgeable and functional in the job.

“It’s healthy and better all around for employees to rotate around the industry. They gain different perspectives and learn new ways of doing the job,” Ander-

son said. “The training and development prepares them to grow into new, more challenging assignments.”

Requests for matrix personnel will now come to Anderson, then requirements will be posted on bulletin boards and through e-mail notices. “We want to put a matrix program in place that serves both the employee and the PEO.”

But the matrix program is not without problems. “Currently employees have to go look for the job they want, consult their supervisor, and arrange to move. I want the opportunities to be open to everyone and will recommend that to the leadership. We’re looking at possible incentives to encourage employees to matrix...to gain that experience. We want to help SMDC people be competitive for lieutenant colonel jobs, as well as program and project manager jobs in their future,” Anderson said.

He echoed what the command leadership says so often: You have to groom people now. Ten years from now may be too late to develop the next generation of leadership.

“There are two ways to work the next 20 years,” he said. “You can gain 20 years of experience, or you can have one year of experience 20 times.”

Military retirement changes explained

by Jim Garamone
American Forces Press Service

Military retirement reform often headed the list of concerns when Defense Secretary William Cohen spoke to service members. Retirement was also a top priority for the Joint Chiefs of Staff when they testified before Congress last fall.

The fiscal 2000 Defense Authorization Bill would make retirement reform a reality, but not a simple one. Congress overwhelmingly approved the bill Sept 22, and it now goes to President Clinton for signature.

The retired pay reform in the bill gives a choice to service members subject to the Redux retirement system—all those who entered the service on or after Aug. 1, 1986—who reach their 15th year of service beginning in 2001.

First choice

They can join the pre-Redux retirement system. This so-called 'high-3' system gives service members 50 percent of their basic pay averaged over the highest three years before retiring after 20 years of service. So, for instance, E-7s retiring after 20 years of service would take their total basic pay for the highest or, probably last three years, average it, and then receive 50 percent of that in retired pay.

For those past 20 years, a straight multiplier of 2.5 percent per year of service, up to a maximum of 75 percent would apply. Also, the annual cost of living adjustments, or COLAs, would be fully indexed to inflation as measured by the Consumer Price Index as opposed to CPI minus one percent currently calculated for Redux.

Second choice

Eligible service members subject to Redux can take a taxable \$30,000 lump-sum bonus, agree to complete at least 20 years of service and choose to remain in the Redux plan with the lesser annual COLA. The bonus, which is immediately payable, can be used any way the member wishes.

Which option is better depends on the individual, said Navy Capt. Elliott Bloxom, DoD director of compensation.

"It's the members' responsibility to weigh the options and decide whether they want a higher monthly income for the rest of their lives or whether they need the money now."

"The particular circumstances that members find themselves in could drive them to the \$30,000 option," he added. For instance, members may want to buy a house or they may have educational requirements. Some may feel they can invest the money and earn even more than if they retired under the High-3 system and if so, they must assume full responsibility for their success or failure, he noted.

Members choosing the \$30,000 bonus would receive the money within 60 days of their decision. If they don't serve the full 20 years, they would have to pay back the unearned portion at the rate of \$6,000 per year.

The first group of service members will face this retirement decision in February 2001, Bloxom said. Once members reach the 14-and-a-half year service mark, they have 180 days to decide which option to select. Their choice is irrevocable.

A little background

Service members perceived Redux as unfair. Redux, a 1980s effort to reform the military retirement system, affects roughly two-thirds of the force today. Under Redux, members retiring after 20 years of service would receive 40 percent of their high-three average basic pay. Under Redux and its predecessor, the pay percentage goes up with longer service until both systems reach a maximum of 75 percent at 30 years.

Redux, a product of the Cold War, was designed to encourage fewer service members to stay for 20 years, but more of those who stayed for 20 to remain in service until 30 years. With today's different missions and members' perceptions, however, officials found Redux actually discouraged service members from staying even 20 years.

"In 1986, people were practically guaranteed a 20-year retirement as long as they continued to perform," Bloxom said. "With the force management practices put into effect for downsizing in the early 1990s, people reaching mid-career could no longer be sure they'd be allowed to continue to 20 years. We determined it's more important to provide the 50-percent-of-basic-pay benefit so people at the 10-year point could see that staying in would be worthwhile."

Service members facing the retirement choice should consult financial counselors and personnel managers before deciding, Bloxom advised. DoD plans to put up a Web site soon offering interactive retired pay computers to help service members make their decision, he said.

DoD studies mission, family needs

by Linda Kozaryn
American Forces Press Service

Mission readiness depends on family readiness.

This message came through loud and clear at a recent Healthy Parenting Design Conference in suburban Washington that brought together about 80 parents, teens, family support providers, commanders and civilian human resource experts. The meeting was the latest DoD effort to deal with the strains placed on military families by today's frequent deployments and other pressures.

Military families and mission readiness are strongly linked, said Air Force Col. John Nelson, the family advocacy program manager for the Air Force who is heading DoD's Healthy Parenting Initiative.

"The most powerful thing emerging here is an agreement that we're at the beginning of a culture shift and we need to accelerate it. That culture shift is one that demonstrates that healthy families equal readiness."

Healthy, adaptive parenting is critical for the military of the future, Nelson said.

"We need to support families in order to support the mission. We need a toolbox of programs, services and information that emphasize family fitness and family readiness."

More than 780,000 of the military's 1.4 million active-duty personnel are married and another 100,000 are single parents. There are 2 million family members, 1.24 million of them children.

Family support has steadily increased as the number of spouses and children has grown, according to DoD officials here. The challenge also includes supporting a community that includes dual military couples, single parents and a growing number of elderly dependents.

Conferees, including experts from Virginia Polytechnic Institute and State University in Blacksburg, assembled Sept. 22 to 24 in Leesburg, Va. The group first looked at how the military community has changed over the decades and then developed action plans for the 21st century.

Small groups prepared and presented recommendations. The conference goal was to help develop resources to support healthy parenting among ac-

tive duty military families. Based in part on conference suggestions, Virginia Tech will solicit proposals from land-grant universities across the country to produce a variety of resources to enhance existing parenting support programs. These materials would reach the field in 2001.

Family policy officials want to coordinate existing services and programs into an overarching, comprehensive DoD-wide effort.

Recognizing a need to go beyond offering traditional parenting classes at fixed locations, DoD officials aim to use the Internet and other communication modes to reach working parents. This could include CD-ROMs, interactive Web-based tutorials, chat rooms, videotapes, books on tape and other products.

"We want the command to look at the family as a resource, not as a problem," a veteran pediatric nurse said. "We need to focus on what they're doing right. We need to understand that families require maintenance. They require occasional upgrades and sometimes they need to be retooled. If you use that kind of terminology out on the flight line, they're going to understand what you're talking about. It's not all touchy-feely."

Hispanic-American Medal of Honor recipients

Hispanic Heritage Month is Sept. 15-Oct. 15.

Thirty-seven Hispanic-Americans were among the more than 3,400 Medal of Honor recipients to be awarded this decoration from the President, in the name of Congress, since its creation in 1861.

The U.S. Army Center of Military History reports that in 1973, the U.S. Senate ordered the citations for these brave acts be compiled and reprinted in a volume published by the Government Printing Office.

There is a full-text listing of all Medal of Honor Citations at www.army.mil/cmh-pg/moh1.htm. Any misspellings or other mistakes can be attributed to the original records and narratives on each recipient.

Lucian Adams
John Baca
David Barkeley
Philip Bazaar
Roy Benavidez
Ralph Dias
Daniel Fernandez
Fernando Luis Garcia
Marcario Garcia
Emilio De La Garza, Jr.
Edward Gomez
Harold Gonsalves
Alfredo Gonzalez
David Gonzales
Ambrosio Guillen
Rodolfo Hernandez
Silvestre Herrera
Jose Francisco Jimenez
Miguel Keith
Baldomero Lopez
Jose Lopez
Carlos James Lozada
Benito Martinez
Joe Martinez
Eugene Arnold Obregon
John Orgega
Manuel Perez
Cleto Rodriguez
Joseph Rodriguez
Euripides Rubio
Alejandro Ruiz
Renteria
Hector Santiago-Colon
France Silva
Jose Valdez
Sando Vargas
Ysmael Villegas
Maximo Yabes

To all soldiers and civilians of the U.S. Army Space and Missile Defense Command...

After an extensive effort culminating in our Aug. 5-6 Strategic Planning Offsite, we have reached the end of the planning phase of our strategic management system. We now need to execute our plan and begin assessment of our progress. To ensure our plan becomes a living document guiding our movement into the 21st Century, framing our mission execution, and enhancing our support to customers, I want to take this opportunity to provide guidance for the road ahead.

The next step for the major subordinate commands is to develop and execute their action plans in support of this strategic plan and brief them to me during the first quarter of Fiscal Year 00. Major subordinate elements' action plans should identify major programs and resources and align them in support of the command's goals and objectives. I have directed the DCSSPA to publish formats and guidance for these action plans and to be prepared to assist you in this effort. As you develop and brief your action plans to me,

using the DCSSPA provided format, I expect to make appropriate changes to the command-level action plan. This is a normal outcome of the process of continuous self-examination at different levels of the command.

With continuous improvement being the ultimate goal of our efforts, we will begin training for and deployment of a meaningful assessment process based upon the Army Performance Improvement Criteria, or APIC, in September. Using the organizational framework provided by the APIC, we will have, in time for the President's Quality Award Program next July, a fact-based and customer-focused understanding of our progress toward our stated goals.

Two additional major steps in the execution of this strategic plan are tying it to our investment strategy and communicating our initiatives, projects, and accomplishments to target audiences. To coordinate the command's efforts in these areas, the DCSSPA, in first quarter Fiscal Year 00, will publish and coordinate the implementation of the SMDC Investment Strategy, and SMDC Strategic Communications Campaign Plan.

In an effort to empower personnel or elements designated within the strategic plan as action leads, I am insti-

tuting quarterly reviews during which the command senior leadership will be briefed on our execution progress. The quarter review will be called the Space and Missile Defense Activities Based Review and Evaluation. The first SABRE will be held in second quarter of next fiscal year. Action leads will be expected to coordinate execution of their action with supporting elements and brief action status at these review sessions. The DCSSPA will publish briefing formats and guidance for the SABRE in the near future.

Our strategic management system will help ensure we are competitive within DoD and the Army. For example, I intend to use the information provided by you during the first SABRE to prepare my POM letter to the Chief of Staff of the Army later in the quarter. This should further help align our Investment Strategy with the Strategic Plan.

The easy work is over. Executing the strategic plan will be hard but necessary work if the command is to remain a viable contributor to our Army and the Nation. I expect the senior leadership to communicate this plan and its execution down to the lowest levels of their organization and to provide the workforce the tools to execute it. This document will be our guide to mission

execution and customer support, and should not just gather dust on a shelf. I do not expect execution to be perfect; we will make mistakes. We will correct them and move on.

Strategic planning is a cyclical process. Even as we publish our plan, we will begin work on the next. Our strategic plan and its supporting command-level action plans provide an excellent baseline for the near term. We must now begin to work on the next iteration of our plan that looks 5 to 10 years into the future, identifying possible new missions and challenges for the command. I have instructed the Deputy Chief of Staff for Strategic Plans and Analysis to begin work on this effort.

As the USASMDM commander, I am proud of your strategic planning efforts to date. It has not been easy or painless, but you have shown your mettle and have produced an excellent plan for the command's future. From the start, it has been an all-inclusive effort. You have produced it, the senior leadership has approved it, now we execute it.

(signed)

Lt. Gen. John Costello
Commanding General

(See related items, pages 10 and 15.)

Brian Hunter: *The Rifleman*

by LuAnne Fantasia
Huntsville, Ala.

He's a hardware engineer on the THAAD radar, who packs an M1903 Springfield World War I rifle.

Competitive in the sport of marksmanship since the late 80's, Brian Hunter competed in August at the National Rifle Championships at Camp Perry, Ohio, on the shores of Lake Erie.

During those two weeks, Hunter won 1st Place Overall in the John C. Garand Match. But, the accomplishment Hunter is most proud of is placing 115th in a field of over 1200 shooters in Match 102, the National Trophy Individual Rifle match.

"In that match, there is no luck involved," Hunter said. "It's pure skill, so I was pretty happy to be in the top 10 percent of that many shooters!"

Hunter said competitors are required to use a modern service rifle and shoot at targets out to 600 yards without any "sighters". The very best service civilian and service rifle shooters compete in this match, including the Marines, Army and National Guard service rifle teams.

"We use the round bulls-eye target, and at 600 yards the 10-ring is 12 inches in diameter," Hunter said. "To be competitive, you have to keep at least 16 or 17 of your 20 long-range shots in the 10-ring, using iron sights."

The two-week National Rifle Championships grew out of what was once called the President's Match at the turn of the century. Initiated in 1903, the competition determined the military rifle champion of the United States, limited to Reserve Components and the States' Militia members, using high-power service rifles only. In 1906, the championships were moved to Camp Perry, and have been there since, according to Hunter.

That first week of the championships is called Service Rifle Week," Hunter said. "I had never competed during the first week, so I was just going there to have fun. I had the right attitude, and I ended up placing very well."

Hunter said the match in which he won 1st place—the John Garand Match—is named in



(Courtesy photo)

The Alabama State Rifle Team competed during the first week—Service Rifle Week—at the two-week competition in Ohio. (Left, kneeling) Brian Hunter, a hardware engineer on the THAAD radar, shot an M1903 Springfield World War I rifle to win 1st Place Overall in the John C. Garand Match.

memory of the designer of the reliable M1 service rifle, issued to members of the armed forces from WWII through the Vietnam war.

"The match is designed to put the fun back into shooting by restricting competitors to only as issued American service rifles as used by the military during WWII," Hunter said. "The M1903 Springfield I used for the Garand Match was from the World War I era, a bolt gun. The '03 Springfield was front line issue during WWI, and was in service early in WWII in South Pacific Battles such as Corregidor and Guadalcanal, until it was replaced by the M1 Garand.

"I always liked those old rifles and I always wanted to shoot an '03 Springfield in a competitive match,"

Hunter said. "With all those good shooters on the line, I'm surprised I won." The competition was shot at 200 yards, with over 800 competitors entered in the event, triple the number from last year.

This was also the first time I had shot the Garand Match," Hunter said. As 1st Place Overall winner, Hunter swept the honors for Top Non-distinguished, 1st Place Other Rifle, and 1st Place Civilian. Other categories were military, police, women, seniors and juniors.

"No one expected somebody to win the Garand Match with something other than a Garand rifle," Hunter said.

AUSA '99 Annual Meeting

SMDC "Solutions" Go On Display

When the 1999 Association of the United States Army kicks off its Annual Meeting and Exposition in Washington, D.C., a number of space and missile defense "solutions" will be on display. It will offer an opportunity for the Army leadership, soldiers, and the public to get a look at the future battlefield today.

On October 11, 12, and 13, the Cotillion Foyer of the Marriott Wardman Park Hotel will be filled with Space and Missile Defense demonstrations of many of the latest innovations to help soldiers fight and win better and safer on the battlefields of the future.

U.S. Army Space and Missile Defense Command

The U.S. Army SMDC, one of the Army's newest major commands, best represents the theme of this year's AUSA Exhibit: "Grounded in History — Focused on the Future." Although the command's roots go back forty years to the beginnings of the Army's involvement with missile defense and space exploration, it was reorganized and designated a major command in 1997 to show the importance these capabilities play in the future of the Army.

Space Support for the Warfighter

The Space and Missile Defense Battle Lab will lead off the U.S. Army SMDC exhibit with a special scenario-driven look at many of the commercial off-the-shelf products that can transform today's soldier into tomorrow's Force XXI high-tech warrior. Join our soldiers as they take you along on a hypothetical deployment to Santo de Nada to protect U.S. interests during the attempted overthrow of a democratically-elected government by a violent dictator - not unlike many of the contingency deployments U.S. soldiers face around the world today.

You'll see how these space products can work throughout the stages

of pre-deployment planning, deployment, and initial operations to help make the tough jobs our soldiers face easier and safer:

- *Tactical Weather* supports pre-deployment planning by providing decision makers with mission-focused weather condition products from the unit's point of departure to its destination.

- *Enroute Mission Planning and Rehearsal* tools used during deployment enable commanders to update their situational awareness and modify or change plans, if needed. Troops can digitally rehearse as they travel, allowing a faster, more effective response in a crisis situation. Typical products to be sent to enroute commanders include weather and enemy location updates.

- During operations:

- **Army Space Support Teams** bring the latest technologies to the warfighters in the field. These teams, fielded by Army Space Command, will be led by

trained *Space Operations Officers* from the newly designated FA 40 Army functional area and will take advantage of the many situational awareness and communication tools that space affords.

- Equipped with their *Joint Expeditionary Digital Information* or *JEDI* gear, like the Jedi knights of *Star Wars* fame, soldiers will know where they are at all times with a Precision Lightweight GPS Receiver, communicate beyond line-of-sight, see farther with laser range-finding binoculars, and have instant two-way messaging at their fingertips with a palmtop computer. Space-based *Force Warning* will alert units of nuclear, biological and chemical hazards, minefield locations, battlefield obstacles, and incoming threat missiles in time to take protective measures.

- Then see how these efforts are integrated with the *Army Battle Command System* at the Battle Lab's *Hardware Software Integration Center*. The HSIC

also is experimenting with an Integrated Command and Control Subsystem for space control.

Space Control

The U.S. Army Space and Missile Defense Command is a strong advocate of the United States having space control capabilities in a time of a national emergency. Just as the U.S. can use space to provide critical support to warfighters around the world, our adversaries can also use space assets to monitor, track and target U.S. troops. The U.S. must be able to prevent space assets from being used as a tool against us. And at the same time, insure that U.S. troops can have uninterrupted access to space products and can operate freely within the regime of space.

The U.S. Army SMDC is currently investigating a number of different space control negation options. Perhaps the most mature is the *Kinetic Energy Anti-Satellite* that entails launching a hit-to-kill interceptor to disable enemy satellites. The 'kill' mechanism can either be a hard-kill debris mitigation device or a reversible soft-kill configuration that uses a paint/chemical spray that would be formulated to degrade over time to temporarily disable a satellite without permanently destroying it. The degradable spray will be on display at the U.S. Army SMDC exhibit.

The Command's *Kwajalein Missile Range* in the Central Pacific today is involved in continuous surveillance of space assets helping U.S. Space Command and NASA identify, track, and monitor the myriad space objects circling the earth today - military or commercial, friendly or foe. They even keep track of the space "junk" that resides in permanent orbit around earth as a result of man's forty years of space exploration.

(continued on next page)

U.S. Army Space & Missile Defense Command
Invites You to See the Latest Space and Missile Defense Solutions
for Full Spectrum Dominance in the Next Millennium

Association of the United States Army
Annual Meeting & Exposition

October 11, 12, and 13, 1999
10 a.m. - 5 p.m.

Cotillion Foyer
Marriott Wardman Park Hotel
2660 Woodley Road, N.W.
Washington, D.C.

A Worldwide Major Army Command

SMDC Hosts Special NMD Session

U.S. Army SMDC will host a National Missile Defense Panel Discussion during the Association of the United States Army Annual Meeting, from 2:30 p.m. to 4:30 p.m. Oct 12 in the Empire Room of the Omni Shoreham Hotel, Washington, D.C.

The purpose of the panel is to discuss the Army's role in National Missile Defense, or NMD, and to educate the senior Army leadership about the Army's capabilities in this area. The agenda is:

- | | |
|-----------|--|
| 2:30 p.m. | Welcome and introduction: purpose of session, growing threat, Army role in homeland defense, resources available/needed, panel introduction.
<i>Presented by Lt. Gen. John Costello, commanding general, U.S. Army Space and Missile Defense Command</i> |
| 2:45 p.m. | National Missile Defense: where we are/road ahead.
<i>Presented by Maj. Gen. Willie Nance, director, NMD Joint Program Manager.</i> |
| 3 p.m. | Integration role and challenges.
<i>Dr. John Peller, Lead System Integrator, Boeing.</i> |
| 3:15 p.m. | Requirements and NMD TRADOC System Manager status.
<i>Col. Robert Billings, interim NMD TSM.</i> |
| 3:30 p.m. | Role of the National Guard in National Missile Defense.
<i>Maj. Gen. Roger Schultz, Director, Army National Guard.</i> |
| 3:45 p.m. | Break to prepare questions. |
| 4 p.m. | Question and answer session.
<i>Chair: Lt. Gen. John Costello, commanding general, SMDC.</i> |
| 4:25 p.m. | Closing remarks.
<i>Lt. Gen. John Costello, commanding general, SMDC.</i> |
| 4:30 p.m. | Panel concludes. |



Space & Missile Defense "Solu

(Continued from page 11)

U.S. Army Space Command

The ARSPACE serves as the Army component of the United States Space Command, operates Joint Tactical Ground Stations to support Commanders-in-Chief in both Europe and Asia, as well as deploy Army Space Support Teams as needed to contingency operations throughout the world. Army Space Command's First Satellite Control Battalion operates the Defense Satellite Communications System that provides worldwide communications for all military services.

The ARSPACE also manages the Army's NASA Detachment at the Johnson Space Center in Houston, Texas. The Army currently has four mission specialists assigned to the NASA manned space effort as well as two more astronaut candidates in training.

Four Army astronauts — Col. William S. McArthur, Jr., Lt. Col. Patrick G. Forrester, Lt. Col. Timothy "T.J." Creamer, and Maj. Douglas H. Wheelock — will be attending the AUSA Annual Meeting. Plan on stopping by the U.S. Army SMDC exhibit to talk with them, learn more about the key role the Army astronauts will play in the building of the International Space Station, and have them autograph a photo for you.

Army Space Program Office

In addition, Annual Meeting attendees will have an opportunity to become acquainted with several key space products that are already in the field thanks to the **Army Space Program Office** located in Alexandria, Va.

The ASPO is responsible for the Army's tactical exploitation of national capabilities or TENCAP. This SMDC organization has successfully fielded more than 60 systems to help soldiers "see and hear" deep in today's battlefield. They are currently developing the follow-on Tactical Exploitation System, the Army's objective TENCAP system for the 21st century, which will combine all TENCAP functionality into a single, integrated, scaleable system specifically designed for split-based operations.

This year, ASPO will have the **Eagle Vision II** - the Army's first deployable, self-contained satellite imagery downlink and processing station - on display for the first time in the AUSA Outdoor Exhibits at the Marriott Wardman Park Hotel. Don't miss this opportunity to see this new in-theater capability to obtain satellite imagery for use in mission planning and visualization, intelligence assessment, and map preparation. Visitors will be able to see a simulated SPOT satellite data collection, as well as examples of the many products that can be generated from this data to aid the battlefield commander.

Space Technology

The **Space and Missile Defense Technical Center's Space Technology Directorate** is also pursuing more long-term space advances to aid the warfighter in the field. AUSA Annual Meeting visitors will have the opportunity to see how Laser Communications will be able to transmit high-bandwidth, secure, wireless communications on the battlefield. Experiments have shown the ability to use this system effectively "mountaintop to mountaintop," aircraft-to-ground, and soon satellite-to-ground to transmit imagery and video data at near real time.

Missile Defense for the Warfighter

The U.S. Army Space and Missile Defense Command — and its predecessors — have long been at the forefront of the development of both National and Theater Missile Defenses for the United States.

National Missile Defense

As the Army's proponent for National Missile Defense, the U.S. Army SMDC con-

tinues to be a strong advocate for developing and fielding a land-based NMD system to protect this nation from enemy missile attack. The Joint Requirements Oversight Council recently recommended the Army as the Lead Service for Land-Based NMD making SMDC's leadership role more important than ever.

In addition, the Army Training and Doctrine Command recently chartered U.S. Army SMDC as the **TRADOC System Manager** for Land-Based NMD. As the NMD TSM, U.S. Army SMDC will represent the Army "user" in the requirements and acquisition process for the land-based NMD system and integrate Army Doctrine, Training, Leader Development, Organization, Materiel, and Soldier requirements for NMD.

Kwajalein Missile Range, a key U.S. Army SMDC-managed test facility in the Central Pacific, will continue to be the location of choice for NMD missile testing. Its remote location and sophisticated suite of sensors make it the ideal choice to serve as a "catcher's mitt" for long-range target missiles launched from California. KMR already hosts the Ground Based Interceptor launch complex, the Ground Based Radar sensor to track incoming target missiles, as well as the necessary Battle Management/Command, Control and Communications infrastructure to carry out the upcoming NMD flight test program.

KMR shows its versatility by hosting effective missile tests for shorter-range Theater Missile Defense systems as well. Targets can be launched from the Pacific Missile Range, Hawaii; Wake Island, or even other islands in the Kwajalein Atoll, such as Meck, to closely simulate a variety of theater-range targets. For example, KMR has successfully been used to test the Patriot -2 system against Scud target missiles.

Kwajalein Missile Range will also field a separate exhibit in the main AUSA exhibit hall in the Omni Shoreham Hotel.

Theater Missile Defense

The U.S. Army Space and Missile Defense Command also serves as the Army's Theater Missile Defense "integrator" to make sure TMD efforts will support joint operations and be effective in protecting U.S. warfighters from all types of missile threats — including ballistic missiles, short-range rockets, unmanned aerial vehicles, or cruise missiles.

The command maintains its technological lead in devising improvements to existing missile systems like PATRIOT and TMD

systems that are still under development such as PAC-3 and Theater High Altitude Area Defense or THAAD

At exercise Roving Sands '99 last June, SMDC demonstrated several programs and innovations to support warfighters executing the TMD battle, including:

- **Iridium Pager**, a satellite-based force-warning system put early warning devices in the hands of soldiers at the lowest echelons.
- **Battle Ordnance Awareness**, a satellite or airborne sensor, provided real-time detections and identification of battlefield flashes to help commanders pinpoint their attack.
- **The Tactical Simulation Interface Unit**, developed by the Space and Missile Defense Battle Lab, was used to pass BOA and PEGEM data to the 32nd Army, Air and Missile Defense Command Tactical Operations Center.
- The **No Horizons** experiment simulated surveillance data from the future Space Based InfraRed System High and passed it to the deployed THAAD weapons system to evaluate the utility of SBIRS High data in optimizing missile defense system employment in high-priority threat regions.

Cruise Missile Defense

The successful participation of SMDC's **Joint Land Attack Cruise Missile Defense Elevated Netted Sensor System**, or JLENS, program in Roving Sands '99 broadened the scope of the exercise to include cruise missile defense as well as air and missile defense.

Using existing technologies to create a new capability for the warfighter, the JLENS - a surveillance radar mounted on a cost-effective airborne aerostat platform - is able to provide the extended-range, over-the-horizon view of the battlefield needed to detect terrain-hugging cruise missiles.

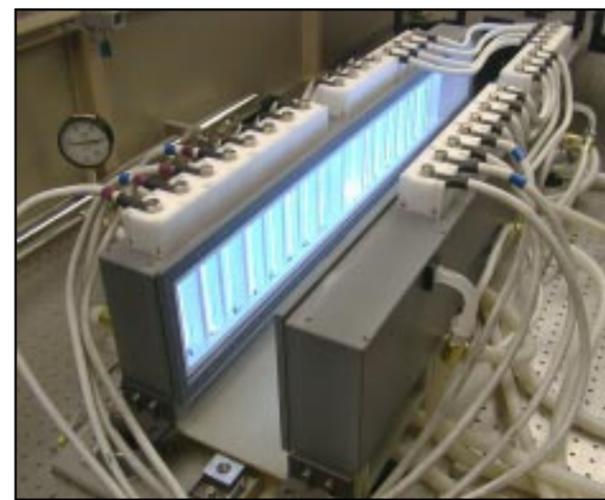
The successful employment of the JLENS surveillance radar simulations significantly contributed to the formation of a Single Integrated Air Picture as well as enhanced cruise missile detection. It also enhanced the engagement ranges of the PATRIOT, Standard Missile, and the Advanced Medium Range Air-to-Air Missiles.

Laser Technology

The U.S. Army SMDC also continues to pursue research and development of other innovative weapons to defend against cruise missiles and other short-range theater

threats, including the pioneering of High Energy Lasers as a tactical weapon. Testing is underway at the High Energy Laser Systems Test Facility on an Army Concept Technology Demonstration **Tactical High Energy Laser** weapon that has been jointly funded with the Israelis. The THEL technology promises to offer a cost-effective complement to hit-to-kill weapons systems in handling close-in rocket and cruise missile threats. An objective U.S. system could be in the field by 2010.

A prime candidate to satisfy the requirements of the objective U.S. tactical laser system is the **High-Power Solid State Laser**. The program's immediate goal is to demonstrate a high-power, all-electric, lightweight, and compact SSL weapon capable of defeating high-volume close-in rocket and cruise missile threats at the High Energy Laser Systems Test Facility. After the device is successfully demonstrated, then the



The simmering flashlamp bank, in the first Solid State Laser module developed, demonstrates high power operations.



The highly successful JLENS, pictured here at the MacGregor Range in New Mexico, demonstrated its capabilities at Roving Sands '99. JLENS is developing advanced sensors that, when elevated, will allow battlefield commanders to better detect and track low-altitude threats such as cruise missiles or aircraft.



utions" On Display at AUSA '99

program will be ready to build a prototype unit by putting the laser device onto a tactical platform such as a Hybrid Electric High Mobility Multi-purpose Wheeled Vehicle.

High Energy Laser Systems Test Facility

Most of the military's laser research and development work is carried out at this unique test facility located on White Sands Missile Range, N.M. The HELSTF operates the Mid-Infrared Advanced Chemical Laser or MIRACL that, even after 15 years of operation, remains the highest power chemical laser in the Western Hemisphere. With HELSTF's infrastructure, highly-instrumented test range, and isolated location, it continues to be the ideal place to test new laser technologies, such as free electron, chemical oxygen iodine, and advanced solid-state lasers.

Space and Missile Defense Technical Center

Formerly known as the Missile Defense and Space Technology Center, U.S. Army SMDC's Technical Center is focused not only on providing cutting-edge space and missile defense technologies, but the technical expertise to the Army and the Ballistic Missile Defense Organization. AUSA Annual Meeting visitors will have an opportunity to see first-hand some of the infrared technology work the Center has accomplished for a myriad of uses:

- **The Sensors Directorate** has coupled its highly-successful MADCAP - *Mosaic Array Data Compression and Processing* - miniature electronics packaging with the Defense Advanced Research Projects Agency's uncooled focal plane array to achieve improved day/night vision

capability for the warfighter. This revolutionary infrared sensor can detect heat sources in either daylight or no light conditions at a fraction of the cost of current night vision systems.

The breakthroughs in electronics packaging made by the MADCAP program promise potential savings of hundreds of millions of dollars on airborne and space systems by reducing size and weight of electronics components by a factor of eight. This technology has application to any system that contains electronic circuits.

• The Atmospheric Interceptor

Technology program continues to develop innovative interceptor components for future TMD kill vehicles. It has already demonstrated a smaller, lighter, more accurate seeker; a cooled seeker window; a solid propellant divert and attitude control system; and lightweight composite material airframe technologies.

• The TMD Critical Measurements

Program uses a unique fly-along, infrared sensor package to collect signature data on realistic threat missiles. The third data collection campaign is now underway.

• The Airborne Surveillance Testbed

flies one of the world's most sophisticated IR sensors on board a modified Boeing 767 aircraft to collect data on a variety of ballistic missile defense targets, systems, and tests. This year the AST has also been used to test a missile seeker for the U.S. Navy Theater Wide program.

In addition, the Technical Center will also have a special display on ways to increase the "survivability" of missile

defense systems, all the way from troops to interceptors, under hostile battlefield conditions.

Theater Missile Defense Coordination Cells

The Space and Missile Defense Battle Lab is also active in the TMD as well as the Space arena. Don't miss the special demonstration of the automated tools used by the TMD Coordination Cells at Atlantic Command, European Command, Central Command, U.S. Forces Korea, and Pacific Command.

They include:

- **COMPASS - Common Operational Modeling, Planning and Simulation Strategy** — to provide interoperability among formerly incompatible computer systems.
- **Project Stalker** - an advanced geographical information system that allows the warfighter to quickly and effectively identify time-critical targets on the battlefield and assists friendly forces to locate and target them.
- **AWaRE** - Advanced WARfare Environment integrates multiple high-resolution images, maps, elevation data, live tactical feeds, and terrain delimitation allowing the commander to view the battlefield on an unprecedented scale.
- **TIGER** - the Tactically Integrated Geographic EnviRonment allows the commander to analyze near real-time statistical, tactical, and intelligence data against a high-fidelity, geographical data base for real-time decision making.

Next-Generation TOC

These TMD Coordination Cell tools will also be used to upgrade the 32d Air and Missile Defense Tactical Operations Center at Fort Bliss, Texas, to increase its interoperability in the Joint TMD arena.

Test Bed Product Office

The Space and Missile Defense Battle Lab's Test Bed Product Office will have two Extended Air Defense Simulations on display:

- **Extended Air Defense Simulation** — A medium-fidelity model of the TMD battlefield that is currently used by more than 400 organizations world-wide.
- **Extended Air Defense Test Bed** - A theater-scope, medium-to-high-fidelity computer-based simulation for analysis of joint TMD or NMD scenarios. Its flexible configuration and user definable rule sets allow customized virtual battlefields.

Ballistic Missile Targets Joint Project Office

The U.S. Army SMDC's Ballistic Missile Targets Joint Project Office also provides a wide variety of both theater and strategic missile targets for missile defense testing conducted by all services. Video footage of successful target launches will be shown.

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As part of the Outdoor AUSA Exhibits, the Army Space Program Office will have an Eagle Vision II commercial satellite imagery downlink and processing station set up for tours. Stop and by see how realtime satellite imagery can aid theater operations.

Army Astronauts to Attend AUSA Annual Meeting

by Ed White
Colorado Springs, Colo.

Four Army Astronauts will be in Washington D. C. to support the Annual AUSA Meeting October 11-13.

The four include Col. William S. McArthur, Lt. Col. Patrick Forrester, Lt. Col. Timothy "T.J." Creamer, and Maj. Douglas H. Wheelock.

Colonel McArthur, the senior Army astronaut, is a native of Wakulla, N.C., and a 1973 graduate of the U.S. Military Academy. He also holds a Master of Science degree in aerospace engineering from the Georgia Institute of Technology. McArthur has been in space twice and has logged a total of 22 days, 4 hours and 44 minutes in space flight. During his flights he traveled 9.2 million miles. His next scheduled flight, STS 92, is in February 2000.



McArthur

Lt. Col. Patrick G. Forrester is a native of El Paso, Texas., He graduated from the U. S. Military Academy at West Point in 1979 and holds a Master of Science degree in mechanical and aerospace engineering from the University of Virginia. Forrester was selected as an astronaut candidate in 1996. Having completed two years of training and evaluation, he is qualified for flight assignment as a mission specialist. Initially assigned to duties at the Kennedy Space Center as a member of the astronaut support team, Forrester currently serves as assistant to the Director, Flight Crew Operations.



Forrester

Lt Col. Timothy J. "T.J." Creamer is a native of Ft. Huachuca, Ariz., but considers Upper Marlboro, Md., to be his hometown. Creamer graduated from Loyola College in Baltimore with a B.S. a degree in Chemistry in 1978., He also holds a M.S. degree in physics from the Massachusetts Institute of Technology. Creamer entered the Astronaut Candidate Training program in 1998. Creamer will receive technical assignments within the Astronaut Office before being assigned to a space flight.



Creamer

Maj. Douglas H. Wheelock was born in Binghamton, N.Y., but considers Windsor, N.Y., to be his hometown. Wheelock graduated from the U.S. Military Academy in 1983 with a Bachelor of Science degree in Applied Science and Engineering. He also holds an M.S. degree in Aerospace Engineering from the Georgia Institute of Technology. Wheelock became an astronaut Candidate in August of 1998. Following a period of training and education he will receive technical assignments within the Astronaut Office before being assigned to a space flight.



Wheelock

“It is the soldier, not the reporter, who has given us freedom of the press.

It is the soldier, not the poet, who has given us freedom of speech.

It is the soldier, not the campus organizer, who has given us the freedom to demonstrate.

It is the soldier (who salutes the flag, who serves beneath the flag, and whose coffin is draped by the flag) who allows the protester to burn the flag.”

Father Edward O’Brien
U.S. Marine Corps



1999 Soldier and NCO of the year, (left) Spec. Kipp Wilson and Staff Sgt. James Doss. Both men are 1st SATCON Bn. soldiers. For their accomplishment, Wilson and Doss received savings bonds, new uniforms, association memberships, and other gifts from: GEICO, AUSM, NCOA, AUSA, USAA, AAFES, and the US Army Community and Family Support Center.

JTAGS goes to JPOW!!!

Reprint from
June '99

While freezing rain and blustery February winds sweep across the flat, river strewn landscape of the Netherlands, the Army Space Command's Joint Tactical Ground Station arrived quietly and its crew quickly set it up for participation in the 4th annual exercise Joint Project Optic Windmill.

The exercise included military members from five nations: the U.S., Netherlands, Great Britain, Germany, and Sweden. JPOW is a coalition air defense exercise that concentrates on the combined response to the theater ballistic missile threat. And JTAGS is a lynchpin to the exercise.

“We could not have the same results without JTAGS,” said Royal Netherlands Air Force 1st Lieutenant Bart van der Graaff, one of the original designers of the exercise. “JTAGS has become such a key player that it will probably be a permanent part of the exercise.”



Photo by Ed White

The satellite dishes are key to receiving the missile launch information directly into theater. The advantage is that early warning of soldiers, sailors, airmen or marines in the predicted impact zone is indeed “early” warning.

Take THAAD!!

We knew where we were going

Reprint from
June '99

It's as sweet as a fourth-quarter touchdown, and as emotional as that three-point shot with 10 seconds left on the clock.

At the end of a 26-year career in Army uniform, Col. Lou Deeter stood in the desert of New Mexico at 7:19 a.m., Thursday morning, June 10, 1999, and watched the Theater High Altitude Area Defense—a beast called THAAD—intercept its rival, the Hera target.

"It was incredible euphoria," Deeter said. "We were watching traces come together on the displays in the control room. Then there was a huge host of cheering voices coming from the back room where they were watching the telemetry tapes," explaining that loss of telemetry means the target is destroyed.

"That's how we knew we had a hit."

Deeter is the project manager in the THAAD Project Office. The program is managed and funded by the Ballistic Missile Defense Organization at the Pentagon, and executed by the Army Program Executive Office for Air and Missile Defense.

With a perfect hit-to-kill—one symbolically heard half way around the world and certainly throughout all of Department of Defense—many people on THAAD's sidelines and in the stands cheered when something they always knew would happen, happened.

"When an interceptor hits the target, it creates kinetic energy, which has to convert to something," Deeter explained some quick physics. "We watched a fireball of about 4.5 million watts of light...of instantaneous energy that morning."

Deeter said that the success of flight 10 is the realization of a journey for a lot of people.

"This team of government, contractors and subcontractors has finally now realized a journey," Deeter said. "This team has accomplished what it set out to do. We knew where we were going and just had to be allowed to complete that journey."

"I'm thankful for everyone who stuck with us," Deeter said. "The commanders and staff of the Army Space and Missile Defense Command never gave up on us. First, General Anderson and now General Costello have always been there with their support and we needed that," he said.

"They knew we could produce. The Army knew we could produce. The nation needs this, and believe me, an accomplishment of this magnitude is well worth the journey," Deeter said.

Deeter said THAAD's successful intercept would be hard to top as a perfect ending to his Army career. "I haven't had time to reflect personally yet," he said, "so the personal impact is hard to describe at this point. But, for the THAAD team that succeeded at this, I am thrilled."

Deeter hangs up his uniform in July and plans to stay in this area. "I just want to find a job here and stay in the missile defense business."

Hera target: happy to have been killed

Reprint from
June '99

This time everything came together: The target was launched on June 10 at White Sands Missile Range, N.M., performed flawlessly, and was hit and destroyed on impact by the interceptor missile ten minutes later.

This was the first time a weapon system developed specifically to defend against theater ballistic missiles had a successful intercept, and for that to happen, a successful target is equally essential during the flight test program.

The Hera target, managed by the Army Space and Missile Defense Command for the Ballistic Missile Defense Organization, is a tactical ballistic missile target typically used for test and evaluation of BMDO interceptor systems.

The Hera flown for this test was modified to present a signature that is more like a medium-range threat, similar to the Iraqi Scud missiles flown during the Gulf war. This modification was necessary because target flights at WSMR are severely limited by the size of the range.

"The target flew a conventional ballistic trajectory with a range of 127 kilometers, an apogee of 314 kilometers, and a velocity of almost two kilometers per second," said Lt. Col. James D. Matthewson, Jr., Theater Targets Product Manager, "which is by no means an easy task. It worked perfectly and we owe it all to our great team—everyone was a contributor."

The contract for Hera was awarded

in 1992 for \$150 million. Hera can achieve ranges on the order of 1,100 kilometers using modified second and third stages from the Minuteman II missile, a modified Pershing II guidance and control section, various interstage hardware, and an instrumented ballistic re-entry vehicle. A third stage could be added to boost the range up to greater than 3,000 kilometers, but no contract has been signed for this target as yet.

Coleman Aerospace Company of Orlando, Fla., is the Hera prime contractor, supported by principal subcontractors Space Vector Corporation of Fountain Valley, Calif., and Aerotherm Corporation of Mountain View, Calif.

"We at Coleman Aerospace are delighted to have been a part of this remarkable accomplishment," said the company's president, E. A. Gallagher.

Rocket motor assembly is supported by the Space and Missile Systems Center of the U.S. Air Force.

When asked how he felt about the spectacular intercept, Lt. Gen. John Costello, commanding general of SMDC said, "We have worked the THAAD program for many years and I have been personally involved with it in this and in my previous job."

"I am extremely happy and gratified for all the members of the THAAD team who have withstood extreme scrutiny to reach the success of today's flight. We need THAAD now. Our soldiers deserve no less."

And that's what our soldiers will have in the field, hopefully by the year 2007, in part thanks to a target program that is dedicated to mission success.



Photo by Lockheed Martin

The Army's new THAAD missile system records first target intercept 50 miles above White Sands Missile Range, N. M.



Command plays long and hard in desert exercise

Reprint from
July '99

Who? An estimated 20,000 soldiers, sailors, airmen, Marines, Department of Defense civilians and contractors.

What? Annual multinational theater air and missile defense exercise with virtual and live players.

When and where? June 15-27 at training ranges and sites throughout Texas and New Mexico, with other players in Virginia, Florida, Arizona, Colorado and California.

Why? To reflect a wide range of capabilities needed in various geographical areas; to enhance commanders' ability to plan and experience joint and combined tactical air operations, and theater missile defense operations under real world conditions. "In theater" replication through simulation even more important this year due to loss of large, live capability to Kosovo.

SMDC's role? Establish space as an integral role to the warfighter and to use the output for future application.

TSIU—the threads that tied

For Roving Sands '99, the TSIU, or Tactical Simulation Interface Unit, was a major player providing support to the 32nd AAMDC, or Army Air and Missile Defense Command at Fort Bliss, Texas. The 32nd is the warfighting host for the exercise.

Bridging the gap between simulation and the soldier, the TSIU makes soldiers experience the same situation as they would in conflict.

Through the TSIU, simulation data is converted to real world tactical information, according to Tom Rycroft, a military operations analyst with Coleman Research Corporation, stationed at Fort Bliss, Texas. During Roving Sands '99, Rycroft was an exercise integrator for SMDC.

"For simulation support, there has to be a clear cut wall between simulation and real world," Rycroft said. "Various sensors in the simulation world create output which the TSIU reformats into tactical messages and sends that real world information back out through the tactical commu-

nication net."

Rycroft explained the three threads running through the Battle Lab's TSIU for the exercise. "The blue thread, or friendly forces, status reporting threat is critical to the joint task force commander as an important piece of his Common Operational Picture. The PEGEM and the BOA are the other two threads."

The PEGEM—Battle Lab's Post-Engagement Ground Effects Model—models contamination and distribution patterns of a nuclear, biological, chemical, or NBC, incident. It provides everyone with the NBC picture.

"It can be a simulated model or a predictive tool," Rycroft said. "At the TOC workstation, it is a predictive tool. If PEGEM suspects an incoming warhead is an NBC one, or if sensors are hit by contamination, PEGEM sends downwind distribution predictions across the simulation network, which TSIU receives and turns into tactical information or perceive data and sends that to the white cell commanders."

(continued on next page)

Roving Sands '99

Battlefield Ordnance Awareness--BOA

This sensor technology collects and processes detonations such as intercepts and missile launch events and provides near real-time information to the commander. It is an initiative of the command's Space Technology Directorate, part of the Missile Defense and Space Technology Center, or MDSTC.

Rycroft explained that whether the platform independent BOA sensors are space-based or aircraft mounted, they are infrared sensors that stare at a sector of the battlefield.

"These sensors look at their sector of the battlefield, unlike the defense satellite program, or DSP, which rotates and is never fixed on one sector of the battlefield," Rycroft said.

Andrew Callan, a general engineer with Teledyne Brown Engineering, was on site in the BOA cell for Roving Sands '99.

"The BOA senses battlefield flashes, everything from artillery firing to impact on the ground," Callan said. "The BOA simulation for Roving Sands—based in Extended Air Defense Simulation, or EADSIM—characterizes those flashes and determines their sources, sends that data to the TSIU, which passes it on to the tactical operation centers of the 40th Infantry Division and the 32nd Army Air and Missile Defense Command."

A contractor for BOA, John Dennis, said, "We're seeing a lot more activity in this exercise than we expected. Yesterday we saw more than 700 events from 12 different types of weapon systems."

Force Warning Experiment

Pager alert warning software and pagers (tower based and space-based iridium); the right information to the right location at the right time instead of alerting the entire theater.

One of the Battle Lab's goals for Roving Sands '99 was to conduct actual field experiments with the

new satellite-based, worldwide Iridium pagers.

"We also want to provide the 32nd AAMDC with leave-behind Iridium paging capability following our Force Warning experiment during Roving Sands," said Larry Burger, director of the command's Space and Missile Defense Battle Lab.

The space-based paging system Burger refers to is an evolving early warning concept that distributes warnings directly to the lowest levels of affected units within 35-40

defense and battle management, which includes command, control, communications and intelligence.

"Force warning is part of the passive defense, or force protection," Coffey said. "It's buttoning down the hatches. It encompasses everything that helps soldiers survive...everything from countering incoming missiles to getting their gas masks on."

Coffey explained how the pager system supported the 32nd AAMDC's passive defense cell for Roving Sands. "The satellites detect a hit and send data to the JTACS, where the alert

warning software creates a mailing list to only those forces in the affected area. Pager messages are instantaneously sent to only those addresses, instead of the entire theater, eliminating the frustrating theater-wide and indiscriminate warning experienced during Operation Desert Storm."

"Roving Sands '99 is a test for the timeliness of the space-based pager concept and use of the software," Pearson said, explaining that previous experiments were tower-based, which depends upon the terrain of the land, such as Kuwait and South Korea.

"We left behind about 400 tower-based pagers in Kuwait, and will leave behind 30 of the 40 Iridium satellite-based pagers for the 32nd AAMDC after Roving Sands," Pearson said.

Coffey added, "The 32nd already has the force warning software and is trained in its capabilities. The pagers themselves are just regular, commercial items available off-the-shelf. It's the software in the tactical operations center that does all the thinking."

Army Maj. Randy Smith is the officer in charge of the passive defense cell for the 32nd AAMDC during Roving Sands.

"At this end, the automated paging system is working well. The only problems have been things such as commercial lines needing to be upgraded to priority lines, and we had some weather interruptions due to severe thunderstorms.

"But this unit has deployed to Kuwait three times during the past year, so these leave-behind pagers and software will be put to good use," Smith added.



The 71-meter Aerostat flew over Roving Sands'99, with the JLENS equipment in tow.

seconds.

"It's easy for the joint task force command and staff to get immediate, critical information, but who gets the word to the private in the sleeping tent to get his gas mask on now?" said Staff Sgt. Larceno Pearson. He is NCOIC of the Force Warning Experiment in the Battle Lab at Colorado Springs, Colo.

"This experiment is all about survivability of the soldier, he added. "These pagers are one of many answers to getting information down to the private's level. If the soldiers get the message in time to prepare for the hit, then force warning has done its job."

Bill Coffey—a support contractor who works with Pearson in Colorado Springs—explained the four pillars of theater missile defense; attack operations, active defense, passive

Laser demo achieves first light

WASHINGTON, D.C.—In late June, the Tactical High Energy Laser, or THEL's, advanced concept technology demonstration laser subsystem achieved "first light" at the TRW Capistrano Test Facility in California.

TRW conducted a test to demonstrate the end-to-end capability of the laser subsystem and demonstrate the laser optical control of extracting a high-energy laser beam.

Subsequent laser subsystem tests are planned before the laser subsystem is transported to White Sands Missile Range, N.M., for integration later this summer.

The THEL demonstration was initiated after the White House announced in April 1996, that the United States and Israel would undertake a joint effort to evaluate the effectiveness of a THEL to negate the threat posed by Katyusha rockets to populated areas in northern Israel.

Dr. Paul Kaminski, the Under Secretary of Defense for Acquisition and Technology, and Maj. Gen. Ilan Biran, director general of the Israeli Ministry of Defense, signed a memorandum, formalizing the agreement, in July 1996.

The agreement provides for development and functional testing of a THEL demonstrator, consisting of a laser; pointer-tracker; and C3I, or command, control, communications, and intelligence subsystems.

The U.S. Army Space and Missile Defense Command is the executive agent of the joint THEL demonstration program for the Department of Defense.

The Israeli Ministry of Defense has also designated a program office to oversee the joint development effort. TRW, Inc. was selected as the primary civilian contractor to design, build, and integrate the THEL demonstrator.

Using mature beam generation and beam pointing technologies to develop a THEL demonstrator, the program developers have driven an advanced concept technology demonstration, or ACTD, program weapon system development from start to hardware completion and achieving laser first light in three years.

Under the current schedule the laser and pointer-tracker subsystems will be transported to White Sands Missile Range, N.M., to be integrated with the C3I subsystem later this summer.

This ACTD has demonstrated the ability to cut through the traditional weapon developmental processes to provide a limited operational capability to the user in a very short period of time.

(Press release from the Office of Secretary of Defense.)

It's called APIC and it's here to stay

Reprint from
August '99

It's a common sense way to assess and improve, and it's the management philosophy the commanding general advocates.

The Army Performance Improvement Criteria, or APIC, is a reworked, *greened* offspring of the Malcolm Baldrige National Quality Award Criteria for Performance Excellence.

"The Army took out the industry-specific criteria and kept Baldrige's principles on management, organization, performance and results," said Liz Hurt, who works in the command evaluation branch of SMDC's newly formed directorate for strategic planning and analysis.

"That left us with the APIC—a set of criteria with a primary focus on an organization's *results*."

The APIC provides a process to align work and achieve performance excellence via strategy and action plans, and Hurt said the command is involved now in a course of action to develop a strategic plan, with three targets in view.

"We aim to raise performance expectations and standards; learn of and share the very best practices among other Army organizations; and establish an

ongoing tool for understanding and managing performance, planning, training, *and* assessment of what we learn," she added.

Hurt said the command's major subordinate elements will each assess their goals and how they plan to achieve those goals, and that APIC provides a blueprint to guarantee goal alignment.

"We want to be very sure that what we are doing across the command is focused on the mission of the command," Hurt said, "and that goals at the lower elements are consistent and aligned with what our leadership says this organization is about."

Hurt emphasized that APIC is an Armywide initiative; one now included in Army regulations on management philosophy. It provides a common language within an organization, a baseline for improvement, and a tangible way to measure results, i.e., this is what we did, this is the result of what we did, and this is how those results fit into the command's strategic plan for improvement.

"If we trained 60 people in 'Seven habits of highly effective people,' we need to go back and determine how that training changed anything in the command, or benefited it in any way," Hurt said.

One of the many core values and concepts to APIC, Hurt said, is a long-range view of the command's future.

"This is a three- to five-year strategic planning process, that involves customers, employees, leadership and a lot of management by fact," meaning, listening to the bad news as well as the good; and gathering accurate and relevant information.

"This criteria is a superb tool," Hurt said. "The command's senior staff will soon receive a more in-depth overview of the concept, after which time members of the command will start to see its implementation."

Hurt said getting started with this effort will be a challenge for managers. Some tips are:

1. Understanding that this is a team-based tool.
2. Accept the criteria as a superb tool.
3. Develop a business overview with your senior staff.
4. Conduct a strength, weakness, opportunity and threat exercise.
5. Identify existing and emerging leaders; change agents and risk-takers.
6. Network with other organizations involved in this effort, and,
7. Understand the challenges of leading people through change.

WIIFM?

Reprint from
March '99

APIC. What's in it for me?

For starters, it eliminates work or tasks that add no value to the mission.

Everything the command and staff worked toward at their recent strategic planning offsite was based on the concept of the Army Performance Improvement Criteria.

APIC is a *greened* version of the Malcolm Baldrige National Quality Award Criteria for Performance Excellence; in short, how the national or corporate process can be applied to a military organization.

"I'm a fan of APIC because I witnessed its application and success at Fort Bliss, [Texas]" said Lt. Gen. John Costello. "The APIC ensures we can adapt to the changes necessary to get the command working together," the commanding general added.

To keep doubts about the concept at bay, Costello said APIC is not a fad, not just a passing idea, and not just an attempt at an Armywide award or recognition.

"We are not efficiently organized, but we are not going to reorganize now," he said. "We are going to fix what we have." He said the command leadership will focus on identifying customers and understanding how what we do on a day-to-day basis impacts on everyone in the command.

"My job is to get us all rowing in the same (and right) direction," Costello said.

Major change and meaningful sustained results in an organization can take from three to five years, depending on the size of the organization. APIC offers a strategic planning blueprint for that change. The first step to that process was a recent command assessment questionnaire, in which employees and customers participated.

Nelson McKown, of the office for strategic planning and analysis, discussed the survey at the offsite.

"We'll use this feedback to analyze the command's situation, but the survey is only a jumping-off point." He said the questionnaire included about 200 internal and external stakeholders, and asked opinions on many issues.

McKown said the feedback gives a good picture of what the command is doing right and where it is broken. He explained critical success factors, core competencies and priority issues before participants broke into small groups for workshops on those factors.

The command's critical success factors are areas external to the command at which we must excel in order to win our market, such as technical development in a tech-based support area.

Core competencies are internal capabilities that give the organization an ongoing competitive edge, and priority issues are usually evident after a review of strengths, weaknesses, opportunities and threats, according to McKown.

"This is not easy to do but it's the only way to set strategic objectives," he said.

Spouses, coordinators delve into family action plan for the command

Reprint from
August '99.

At the strategic planning conference in Virginia last week, a special group of people met together for the first time to flesh out the specifics of the command's Army Family Action Plan.

The AFAP is a 16-year-old, Armywide program, that affords soldiers, civilian employees, and all family members the opportunity to effect significant changes.

With strong support from SMDC leadership all the way up the Army chain, this powerful program "breaks down the barriers, to help us overcome the we-they way of thinking," said Michele Costello, wife of SMDC's commanding general. She is also a special project officer in the Army Family Liaison Office at the Pentagon.

"We don't want to think in terms of 'this is military versus civilian,'" Costello added.

She pointed out that this is the first time spouses have been invited to a SMDC offsite to discuss family issues. "And we're including the whole SMDC family..." she said. "...soldiers, civilian employees, contractors, and family members of all."

Those who met at the offsite said they will continue to encourage members of the SMDC family to present issues to their local AFAP coordinators. Those issues will be resolved either at the command level, or at Army levels when the issue has a broad impact, according to Costello.

Portia Davidson is the command's



Photo by William Congo

(left to right) Leslie Bloxham, Dorothy Nelson, David White, and Micki Costello were a few of the participants at the command's Army Family Action Plan meetings during the summer offsite. Nelson is a conference planner and manager of the Army Family Team Building program. White is chief of the Army Family Liaison Office, where Costello is also a special project officer.

AFAP coordinator. Designated coordinators throughout the command are: Don Mathis, ARSPACE; Cris Foster, HELSTF; 1st Sgt. Ozel Robertson, Kwajalein; Gloria Flowers, Huntsville; Master Sgt. Bill Peeler, ASPO; Sgt. 1st Class Bernard Coutour, 1st SATCON Battalion; and Regina Campbell, Arlington.

Costello said coordinators have information on local resources for the Army Family Action Plan, the Army Family Team-building program, and the Army Family Liaison Office. Leaders in the command, as well as those at the

Army level, are supportive of finding a solution to all issues, and are supportive of promoting programs that enhance family readiness, according to Costello.

"My husband cares very deeply about people. Commitment, caring and compassion are part of building a cohesive organization," she said.

"We all have a certain amount of identity as individual family members, but what's more important is that we have an identity as the SMDC family as well," Costello said.

Altair is prepared for the next millennium

Reprint from
December '98

The Altair radar is easily visible at Roi-Namur, with its 150-foot-diameter antenna rising high above the palm trees. Altair is 470 tons of antenna, 12 megawatts of power, signal processing and a computer system with software capable of supporting the radar's diverse mission assignments.

Mostly, however, Altair is a cadre of dedicated and capable operators, engineers, analysts, technicians, and maintenance personnel.

Like a popular restaurant chain in the states, Altair never closes. It is open for business 24 hours a day, 365 days a year. Only 15 minutes' notice is required for the radar to be up and tracking.

With its wide very high- and ultra high-frequency beams—the largest of any in the Kwajalein Missile Range complex—Altair can provide data not available from other sensors.

With a single pulse, Altair can detect a metallic object the size of a volleyball as far away as New York is from San Francisco. It also can add up the returns from many pulses to track satellites at longer ranges.

Altair is usually the first sensor at the missile range to see launches come over the horizon from Vandenberg Air Force Base, Calif. It identifies re-entry vehicles, payloads, and decoys and provides steering data to the rest of Kwajalein.

Over two years ago now, Altair Engineering began work on the millennium bug—the year 2000 problem that concerns computer experts worldwide. The problem, in a nutshell, is that unless their code is changed, computer systems using the two-digit system for denoting years are expected to interpret Year 2000, or 00, as 1900, and crash; losing vital data.

Five phases of compliance

Awareness, assessment, renovation, validation and implementation are the five phases of Y2K compliance.

Awareness was easy: "Boy, we really have a problem here—1.2 million lines of home-grown code." Assessment verified that about 200 changes had to be made to Altair software. As fixes were unit-tested by Altair Engineering, they were submitted for baseline updates. Finally, Altair had a system that worked in current time and was also ready for Y2K testing, or validation.

Altair engineers implemented two capabilities to

support testing—*cocooning* and *warping*. Altair sometimes has to protect sensitive data by severing lines in and out of the site and switching to special operational disks. This capability, called cocooning, was used in this case to protect the baseline data base and other missile range sensors from test data. A copy of the operational data base was brought into the cocoon.

The next problem was that current time data were useless when system clocks in the cocoon were set ahead to Year 2000 and beyond. Altair needed to be able to use the data base to find specific satellites. Data base warping was the answer.

Individual element sets—data that tells the software where satellites are—were brought forward in time and warped by changing the right ascension. In this way, valid Year 2000 tracks and data base operations could be verified.

Testing is completed

Basically, Altair has two customers: the missile range at Kwajalein, run by the U.S. Army Kwajalein Atoll, and the Space Control Center at Cheyenne Mountain, Colorado Springs, Colo. Y2K compliance had to be demonstrated to both customers.

During October and November (of '98), Altair successfully participated in combined Kwajalein Missile Range and Y2K testing in which clocks were set ahead throughout the atoll. Data were successfully exchanged with Kwajalein's mission control center and other sensors, and were sent to the states for verification of format and accuracy.

Cheyenne Mountain, Altair's primary customer based on number of tracks, was also ready for integrated testing. Another series of Y2K tests was performed in October '98 to test the Space Command network, of which Altair is a member. Altair cocooned, warped and successfully exchanged track data and other operational messages with the test system at Peterson Air Force Base in Colorado Springs.

Advantageous view of foreign launches

Launches, especially military ones, from other countries are of vital interest to America. Altair is always on 15-minute recall for new foreign launch support. It can see more than 60 percent of Russian launches 25 minutes after launch; more than 90 percent of Chinese launches 17 minutes after launch;



(Army photo)

Altair is 470 tons of antenna, 12 megawatts of power, signal processing, and a computer system with software capable of supporting diverse mission assignments...and it is Y2K compliant for the next millennium.

and all Japanese launches 11 minutes after launch. Usually, it is Altair that provides Space Command with the first radar data on these launches.

In addition to near-Earth initial coverage, Altair is the first radar in the Space Surveillance Network to have visibility of all Russian, Chinese and Japanese launches in their deep-space-transfer orbits, and the only sensor that covers the injections of these launches into synchronous orbits. Without this coverage, other Space Surveillance Network sensors would have to spend many hours searching for newly launched foreign payloads.

This new foreign launch capability was also tested in the Y2K program. The warped data base was used to prove the KOR capability (known object recognition) will still work in the new millennium. The KOR procedure keeps Altair from tracking known satellites when searching for a new launch.

Altair has completed internal testing and validation, independent review and certification. Altair is ready.

Space-knowledgeable officers now have a career field

Twenty-three officers recently became the first career field designated Army space operations officers. These officers are part of a unique group charged with leading the service's continuous advance into the final frontier.

Officers assigned to this new field called "Functional Area 40" will focus on exploiting the capabilities of space-based systems to provide Army commanders the ability to make maximum use of space assets throughout all phases of theater operations.

Space Operations in the Army involve the understanding and coordina-

tion of information from space systems to ensure the protection of friendly space capabilities, the control of space, and application of force from and through space.

In a letter to the newly selected officers, the Commander of the U.S. Army Space and Missile Defense Command, Lt. Gen. John Costello, said these officers fill a vital need for the Army of tomorrow.

"Virtually every level of Army operations has become dependent upon the use of space capabilities," he said. "Future Army operations will require

officers to be well versed and experienced in space systems and their joint applications. Commanders must have a space-knowledgeable staff that understands space capabilities and can optimize their application in support of the commander's intent. Functional Area 40 is in the pivotal position to provide the comprehensive coordination of space assets," Costello said.

The Army's first Career Field Designation Board results were released in May. Eleven lieutenant colonels and twelve majors were "career-field designated" into Functional Area 40 —

space operations. Currently there are 140 Army officers who have been assigned to the Functional Area 40. Twenty-three are Career Field Designated FA40, eight are single tracked FA40, and 109 hold FA40 as their secondary skill. Officers will be assigned to this command, the Army Space Command, and the U.S. Space Command, with the remainder filling billets throughout the Army.

More information about the FA 40 program can be found on SMDC's Website at www.smdc.army.mil/fa40/fa40.html.

Here's the party line on political activities

...sometimes you can; sometimes you can't



The Hatch Act--and other statutes--outline the parameters of political activities authorized by *federal civilian employees*. While not covered by the statute, *military members* do have their political activities

defined by DoD Directive 1344.10 and Army Regulation 600-20.

Congress' current policies encourage the exercise by federal employees—including military personnel—of their rights to participate in the Nation's political processes, without fear of reprisal or penalty. Public service is a public trust. Federal employees are required to place loyalty to the Constitution, the laws, and ethical principles above private gain. Both criminal and civil penalties, including a mandatory 30-day suspension without pay, are enforceable for violation of the statutes relating to political activities.

Applies to everyone

There are several statutes of general applicability to all federal employees, including military. Regarding political contributions, a federal employee—civilian or military—may not:

- Contribute more than \$25,000 in any calendar year and no more than
 - \$1,000.00 to any candidate (including the candidate's authorized political committee) with respect to any election for federal office;
 - \$20,000 during any calendar year, to political committees established and maintained by a national political party; or
 - \$5,000.00 during any calendar year, to any other political committee
- No person may contribute in the name of another person or knowingly permit his or her name to be used to make such a contribution:
- Officers or employees of the United States may not knowingly solicit political contributions from other officers or employees of the United States
- No employee may solicit or receive any political contribution in any military reservation or federally occupied office facilities;

Military can

- Register, vote, and express a personal opinions on political candidates and issues, but not as a representative of the Armed Forces;
- Encourage other military members to vote, without attempting to influence or interfere with the outcome of an election;
- Contribute money to political organizations, parties or committees favoring a particular candidate or slate of candidates subject to monetary restrictions listed above.
- Attend partisan and nonpartisan political meetings or rallies as spectator, when not in uniform;
- Join a political club and attend its meetings, when not in uniform (but may not serve in any official capacity in a partisan political club);
- Serve as a nonpartisan election official, if such service is not performed in uniform, does not interfere with military duties and is approved by the installation commander; No person may contribute in the name of another person or knowingly permit his or her name to be used to make such a contribution: approved by the installation commander
- Sign a petition for legislative action or to place a can-

didate's name on the ballot, and is done as a private citizen

- Write a letter to the editor expressing personal views on public issues or political candidates;
- Display a political bumper sticker on the member's private vehicle.

Military can't

- Campaign for or hold elective civil office in the federal, state or political subdivision thereof;
- Participate in partisan political management, campaigns, or conventions. This includes fund-raising activities or giving political advice to particular campaigns or candidates;
- Use military authority to influence the vote of a member of the Armed Forces, to interfere with an election, solicit votes for a particular candidate or issue;
- Attend partisan political events as an official representative of the Armed Forces;
- Engage in fund-raising activities for partisan political causes on military reservations or in Federal offices or facilities;
- Make a campaign contribution to another of the Armed Forces or to a civilian officer or employee of the United States for promoting a political objective or cause;
- Speak before a partisan political gathering of any kind for promoting a partisan political party or candidate;

It is important to note a member of the military is not prohibited from participation in local nonpartisan political campaigns, initiatives, or referendums. But, the military member may not wear a uniform or use any Government property or facilities when participating in these activities. The participation may not interfere with the performance of official duties. And lastly the participation may not imply that the Department of Defense is involved with, or taken an official position on the local political activities.

Civilian employees can

- Run for public office in nonpartisan elections;
- Register and vote as they choose;
- Assist in voter registration drives;
- Express opinions about candidates and issues;
- Contribute money to political organizations;
- Attend political fund-raising functions;
- Attend and be active at political rallies and meetings;
- Join and be an active member of a political party or club;
- Sign nominating petitions;
- Campaign for or against referendum questions, constitutional amendments, or municipal ordinances;
- Campaign for or against candidates in partisan elections;
- Make campaign speeches for candidates in partisan elections;
- Distribute campaign literature in partisan elections;
- Hold office in political clubs or parties;

...but they cannot

- Use their official authority or influence for the purpose of interfering with or affecting the result of an election;
- Personally solicit, accept or receive political contributions unless both the collector and the donor are members of the same Federal labor organization or employee organization and the donor is not a subordinate;
- Personally solicit political contributions in a speech or keynote address given at a fund-raiser;
- Allow his or her official title to be used in connection with fundraising activities;

- Solicit, accept or receive uncompensated volunteer services from an individual who is a subordinate;
- Run for nomination or election to public office in a partisan election, except as an independent candidate in local partisan elections;
- Contribute to the political campaign of another Federal Government employee who is in the DoD employee's chain of command or supervision or who is in the employing authority.
- Knowingly solicit or discourage the political activity of any person who has business with DoD;
- Engage in political activities (to include wearing political buttons) while on duty, while in a government occupied office or building, while wearing an official uniform, badge, insignia, or other similar item, or while using a government vehicle;
- Solicit political contributions from the general public;

Senior executive service members cannot...

- Manage or participate in any way in the campaign of a candidate for partisan political office or political party office. (This includes active participation in any fundraising efforts, making speeches, canvas for votes in connection with a partisan candidate for office or partisan candidate for political party office; distribution of fliers in a partisan election.)
- Campaign for, or be a candidate for partisan political office;
- Endorse or oppose a candidate for partisan political office or candidate for political party office in a political advertisement, broadcast, campaign literature or similar material, if such actions are taken in concert with such a candidate, political party, or partisan political group;
- Hold office in political clubs or parties;

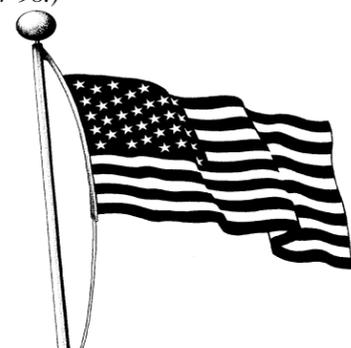
And furthermore...

A DoD employee (except a career member of the Senior Executive Service, who resides in a municipality or a political subdivision, either in the immediate vicinity of the District of Columbia or in which a majority of voters are employed by the federal government) may run as an independent candidate for election to a partisan political office for a local office.

However, the candidacy or service in the political office cannot result in interference with the official duties of the DoD employee or create a conflict of interest.

Further, an employee described above may receive a contribution in connection with a local election, as long as the employee does not solicit such contributions from the general public.

Remember that the statutes and implementing authority may not have addressed many activities. When in doubt about participation in a political activity, use common sense and reasoned judgment. Questions concerning your participation in political activities may be addressed to (256) 955-3213 (DSN 645). (Reprint from *September/October '98*.)



Combined Federal Campaign Oct. 4 – Nov. 12

“Care enough to share enough”

Rescue missions
Boys Town
4-H
St. Jude Children's Research Hospital
Habitat for Humanity
Christian Military Fellowship
Guide Dog Foundation for the Blind
Cancer Biotherapy Research Group
Volunteers of America

These are only a few of the many organizations in the CFC that aid and support military and civilian families everywhere.

Proposed extension of the Family and Medical Leave Act

The Office of Personnel Management is currently working to make significant changes in the Family and Medical Leave Act of 1993. The most significant proposal is an extension which would allow federal workers to use up to 12 weeks of accrued sick leave annually to care for ill family members.

Under the current regulation, federal workers are allowed to use up to 13 days of sick leave per year to care for family members and up to 12 weeks of unpaid leave. This proposed extension, announced May 23, would allow workers who need as many as 12 weeks per year to use them without losing pay in the process. The decision is pending.

MIA remains recovered

The remains of three American servicemen previously unaccounted-for from Southeast Asia have been identified and are being returned to their families for burial in the United States.

They are identified as Army Capt. Clyde D. Wilkinson of Mineral Wells, Texas., Army Warrant Officer Arthur E. McLeod of Bay Shore, N.Y., and Navy

Lt. Cmdr. V. King Cameron of McAllen, Texas.

With the accounting of these three servicemen, 529 Americans have been identified from the war in Vietnam and returned to their families. There are currently 2,054 Americans unaccounted-for from that war.

DoD travelers can soon access charge accounts

Service members and DoD employees traveling on official business soon will be able to call up their personal travel card accounts on the Internet.

The Electronic Account Government Ledger System, known as EAGLS, now gives DoD travelers Internet account access. About 1,000 cardholders began testing the new program Sept. 1. Defense Finance and Accounting Service officials here say they hope to have DoD's 1.1 million cardholders on line in the next year.

Military strength figures for July 31, 1999

The total numerical strength of the Armed Forces on July 31 was 1,377,282. This is an increase of 6,319 from June 30, and a decrease of 25,832 from a year ago.

These figures represent full-time military personnel comprising both regular and reserves on active duty and officer candidates, including cadets at the three military academies.

Excluded from these figures are approximately 65,000 full-time military personnel who are paid from other than active duty military personnel appropriations. This group is funded from appropriations for reserve components and Corps of Engineers civil functions. A comparable figure for fiscal 1998 was also 65,000 military personnel.

All win with pay raise, pay table reforms

Everyone wins in the military com-

ensation portion of the fiscal 2000 Defense Authorization Bill, said Navy Capt. Elliott Bloxom, DoD director of compensation.

The bill, passed by both houses of Congress Sept. 22, authorizes a 4.8 percent across-the-board pay raise on Jan. 1, 2000. It also makes pay table reform a reality. Some 75 percent of all service members will receive a further pay raise July 1, 2000.

“The authorization bill is huge in terms of what it will do for our men and women in uniform,” Bloxom said.

The changes to basic pay, retirement, fixes to the military pay table and pay raises to DoD civilians total about \$35 billion over the next six years. Bloxom said DoD officials proposed the military pay “triad” in response to the changing demands of U.S. forces today and the competition DoD faces from a vibrant economy.

“We must adequately compensate the men and women in uniform so they will stay with us, instead of being lured to do something else,” he said. Also, more military personnel have achieved higher levels of education than in the past and DoD has to adequately reward them, he added.

Air Defense Artillery Association hosts annual dinner dance

The Redstone Arsenal/Huntsville chapter of the Air Defense Artillery Association will have its annual St. Barbara Dinner Dance, saluting the Air Defense Artillery branch, Oct. 16, at the Redstone Arsenal Club. Featured speaker and guest of honor is (promotable) Army Col. John Urias, Program Executive Officer, Air and Missile Defense. His presentation will be of interest to all air defenders and supporters of the branch. The evening includes a program that celebrates our heritage, recognizes the accomplishments of individual members and offers the opportunity for guests to enjoy dinner, dancing and fellowship. Contact Chapter Secretary John Welt for more information: jwelt@colsa.com or (256) 922-

More happy campers!



Blackwell



Bradshaw

The Huntsville (Ala.) based Army Space and Missile Defense Association recently awarded two young family members with one-week scholarships at the U.S. Space and Rocket Center Space Camp. **Christopher Blackwell** and **Jerry Bradshaw** are the new, lucky recipients. Blackwell is the son of Pamela and Buck Blackwell of SMDC-Huntsville and the grandson of Kay Plemons, who works in the Program Executive Office for Air and Missile Defense.

Bradshaw is the son of Lt. Col. Jerry Bradshaw from SMDC-Huntsville's Technology Analysis and Integration Directorate.



Transfers...

Lynwood Gray; Dave Villeneuve, Shirley McCluer, Les Jones, and Clarence Eck,

Hail & Farewell ...

Welcome to Colonels Ron Ouellette, Mary Fuller, Robert Gregg and Enrique Janer; Sgt. 1st Class Earla Reddock; Farewell to Maj. Kyu Lee, Command Sgt. Maj. Ray Hrynko, and Pete Cerny.

Awards ...

Legion of Merit to Lt. Col. Pete Weiland; JLENS Employee of the Quarter to Maj. Bob Payne; Meritorious Service Medal to Maj. Kyu Lee; Army Commendation Medal to Sgt. Jim Keegan; Federal Women's Program Awards to Juanita Sales, Roz Smith, Jack Calvert; Meritorious Civilian Service Award to Steve Tiwari; Savings Bond Campaign Award to Deputy Chief of Staff Personnel-Huntsville.

At Army Space Command, Army Achievement Medals to Capt. Bill McLagan, 1st Lt. Pete DeGuzman, Staff Sgt. Kevin Newman, and Sgt. Erik Herrman.

35-year pin to Helen Walker; 30-year pins to David Cross, Norman Gilfand, Ronald Liedel, John Cady; 25-year pins to Connie Baze, Molly Krisher, Carolyn Meadows, Sherry Fincher, Tana Beall, Gerald Wilson, Charles Lamar, James Brothers and Frank Bowles. 20-year pins to Marilyn Williams, Barbara Scales, Pam Porter, and Lornette Stokes.

At Kwajalein, Commander's Awards for Civilian Service to Pres Lockridge, Maryanne Lane, Nelda Reynolds, Marie Harrell and Donna Hansen.

Promotions ...

Promotion to Lt. Col., Robert James; promotion to E-7, Sgt. 1st Class, Raynell Ferguson, Douglas Giesecking, Christopher Glenn, Santiago Gonzalez, Brian Groves, Edwin Hanson, John Hughes, Brian Lamay, Patricia Lammie, Martin Maloy, Terri Reed, Christopher Simpler, Kenneth Tompkins, and Douglas Bram. Promotions for civilian employees Jim Walker, Nelson McKown, Nina Dixon, Evelyn Daniels, John Stubbs, Jan Renae Jones, Nancy Parker, and Sandra Pepper.

Sports...

Dottie White, U.S. Karate Team; Staff Sgt. Carins Beattie, U.S. Volleyball Team; Brian Hunter, 1st Place in John Garand (National Rifle) Match.

Retirement ...

Lt. Col. Pete Weiland; Dave Lambert



Aerial view of Roi-Namur island.

Roi-Namur 'mayor' assures superb support for Kwajalein

*Reflects on importance of
World War II in Pacific area*

**Story & photos by Marco Morales
Huntsville, Ala.**

It is said the sun never sets on the U.S. Army Space and Missile Defense Command, or SMDC. That statement isn't far from the truth — especially when travelling some 7,080 miles to get from SMDC in Huntsville to the Kwajalein Atoll.

The U.S. Army Kwajalein Atoll and Kwajalein Missile Range (USAKA/KMR), roughly 2,136 miles southeast of Hawaii, occupies part of the Marshall Islands and is the first U.S.-run facility situated in the South Pacific Ocean after crossing the international date line.

Upon arriving at Kwajalein, don't expect to see many cars or even a traffic light — there are few cars and no traffic jams. In fact, most everyone there gets around the island by foot, bicycle or golf cart. And, with no industry to pollute the water or air, the warm, Pacific trade winds comb their way across the balmy paradise islands.

As with most geographical areas that are isolated by great distances, logistical management and support are an integral part of survival for those who depend on Kwajalein's infrastructure.

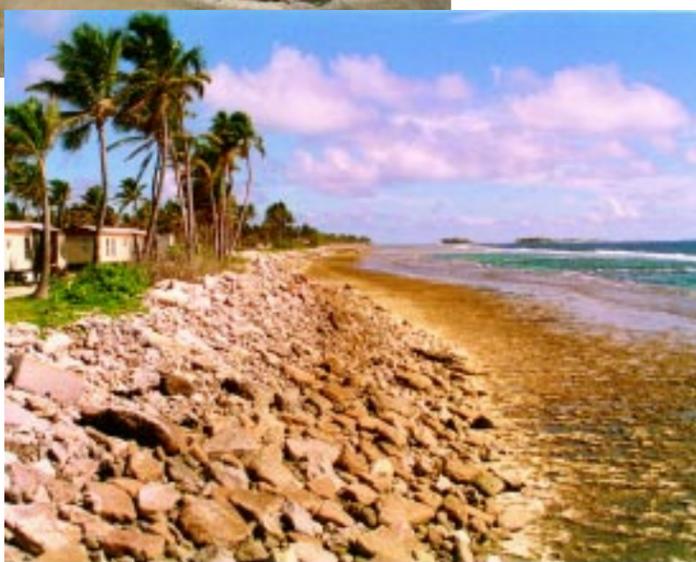
Von Christiansen assures the Kwajalein Logistics Support contract activities run smoothly for Roi-Namur and Meck Island, at the USAKA/KMR. Christiansen, a Raytheon contract employee, is responsible for providing overall management and administrative aspects for the outer islands of the KLS program including power plant maintenance.

"Power is a number one priority. If you don't have power there is little else that will happen," he said, smiling.

Roi-Namur, located about 50 miles north of Kwajalein, is served daily by commuter aircraft. One of the most sophisticated and important research and development radar sites—the Kiernan Reentry Measurements Site—is located on Roi-Namur.

Christiansen, also known as the "mayor" of Roi-Namur, has more than 30 years experience in managing operations and maintenance activities in the U.S., the Middle East, Diego Garcia, and the Pacific region. A veteran aviator of 26 years in the U.S. Air Force, he achieved the rank of colonel and command of a large fighter wing. He flew 400 combat missions in Southeast Asia. Aside from his current leadership role, he maintains a clear military perspective and understanding of the battle for the Japanese-occupied Roi-Namur islands during World War II.

"You can visualize what it would be like assaulting across an airfield, with tanks supported by infantry, against troops that had dug in," Christiansen said, as he drove past one historical World War II marker on Roi-Namur. "The tanks would root out the troops without much difficulty," he said. The island is speckled with many bunkers and buildings that remind visitors of Japanese control over the Marshallese people



The eastern shoreline on the island of Kwajalein lends itself to typical post card scenes of tropical, pristine Pacific Ocean beaches lined with coconut-laden palm trees.

before U.S. forces secured the area Feb. 4, 1944.

Why the big interest in the Pacific campaign during World War II?

"As a young kid, growing up during World War II, I became infatuated with airplanes and the drive to become a pilot just got stronger," he said. During his military career, Christiansen received two Silver Star medals, two Legion of Merit medals, seven Distinguished Flying Cross medals, and 30 Air Medals.

"Now you see over here, coming out in the jungle... and it's kind of rusted and sloping down into the water," Christiansen said, adding, "That's the remnant of what I call a torpedo shute which was probably used as a servicing pier.

"The Japanese had about 30 submarines that they worked out of here and the submarines that were active at the mouth of Pearl Harbor December 7, 1941, were from Roi-Namur," he said, further emphasizing that it was a little-known fact. "The bombers that pounded Wake Island for several days before the Japanese landed there were from Roi-Namur as well," Christiansen said. Christiansen said the Japanese had some 240 bomber aircraft based in Roi-Namur at that time.

Describing another part of the historical tour, Christiansen stopped by a distinct landmark.

"A Marine engineer with a demolition satchel charge crawled up beside a bunker and threw the satchel inside not knowing what was inside," he said. "Unfortunately, there were bombs and torpedo warheads inside and he not only killed himself but about 50 other soldiers. This was the one cause of most of the American casualties at Roi-Namur. That huge explosion and concussion stopped all of the fighting on both sides as they sort of recovered and recoiled for another assault."

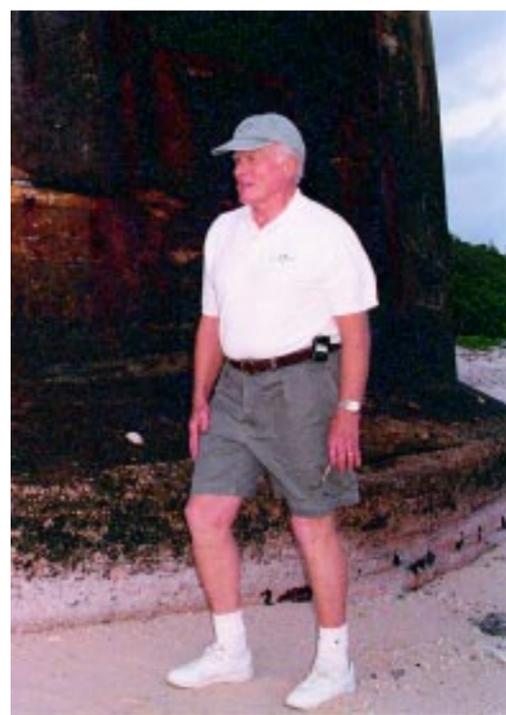
Currently, about 175 people live on Roi. With workers who commute from Kwajalein, the daily work force on Roi is about 300. Transportation between the islands is by commuter airplane, catamaran, and barge. "There are currently about 26 people who provide maintenance support for all of the radar antennas," Christiansen said.

Christiansen said that the U.S. presence on the Marshall Islands has given natives a chance to enhance their job skills.

"There's a Job Corps training facility on Kwajalein that gives them an opportunity to acquire technical skills and then go to Hawaii or to the U.S. to work for two or three years, giving them additional experience for future jobs," he said.

What makes the job interesting for a man like Christiansen in such an isolated place?

"Most days this job is pretty satisfying," he said. "But there are days that, for some reason or another, the problems are such that I could back off from saying that."



Von Christiansen, manager of outer islands logistics at the U.S. Army Kwajalein Atoll, recognizes the importance of U.S. troop involvement during World War II in the Pacific Theater.

