

2012 WINTER

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A PROFESSIONAL JOURNAL



SPACE PROS

Key Players 'Always in the Title Game'



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U.S. Army Space and Missile Defense Command/Army Forces Strategic Command publishes the Army Space Journal quarterly, with special editions as required. The publication consists of four sections, THE LEADING EDGE – Leadership Updates; TALKING SHOP – Space Topics; TIP OF THE SPHERE – Space Cadre News & Features; and FLIPSIDE – USASMDC Features & Briefs.

The Journal provides a forum through which Space and Missile Defense professionals can disseminate professional knowledge and furnish information within the U.S. Army. The purpose is to increase the effectiveness of Space operations through a professional discussion of events and lessons learned. It is also intended to inform the Army warfighter on Army Space issues.

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2012 WINTER

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★ SPACE ★ MISSILE DEFENSE

Army Space Journal - A Professional Journal

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COVER PHOTO: U.S. Army courtesy photo

FLIPSIDE COVER PHOTO: Dottie White



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These pages are flipped by design. Turn them over to continue reading.



A Story of Chutney

Oranges, Pineapples, and Honey

A story of chutney? As is my habit—and much to the chagrin of the staff that puts each edition of the Army Space Journal together—I write my column last just before the magazine heads off to the printer. So if you wonder why my information is sometimes more recent than included in other parts of the publication, it is because some of our writers routinely run a little (or a lot) late. In any case, my habit requires the graphics editor to include phony text as a placeholder as we go through the editing process to move things along. Usually a staff member provides article and headline text that is meaningless and easily replaced once I complete my task.

Actually, although I know very little about chutney, the headline is eerily spot-on-the-mark. Typically in the magazine business, headlines are written after the article to summarize what is being attempted in the article. So, while it may be the chicken-or-egg thing, the article normally comes first then the headline. This time, though, the staff will be surprised when they see I have let the phony headline stand. There is certainly a kick to the word chutney. More importantly, it is a food concoction going back hundreds of years, with a variety of old ingredients and new that blend together for a tart taste of opposites—a surprising blend of distinct spices, sweets, and foods to pack a pretty good, mouth-puckering punch.

So here is my attempt at a column on chutney, and it starts with the old.

I recently bought a fragile bound copy of the Army Navy Journal covering the last eight months of the Civil War and first four months of aftermath. Something about the feel, smell, and look of the old newspaper which actually existed during the Civil War triggers my curiosity. The fact that my eyes were reading “breaking news” from a

military professional journal, with reporting on battlefield events as they unfolded, makes it even more exciting. I would consider the Army Navy Journal an early predecessor to the ASJ and all professional journals in the military. William Church started the weekly national publication in August 1863, publishing out of New York with regular battle updates and analysis for the Union Army.

In my bound copy of the Army Navy Journal’s second year product, the editor writes editorials in the form of “Notes to Subscribers” and other essays. Three things have caught my eye through that year’s scan. First, Church expresses his pride to be a part of collaboration in the profession of arms as the publication begins the second year of service to readers. Second, he highlights the continued need for a professional military not only as the nation heals from internal war but during peacetime into the future. Third, he discusses the integral role of a professional journal focused on issues surrounding the military profession of arms in the transition to and continuation of that peacetime military.

As I carefully turned the old smelly and yellow-stained pages, I couldn’t help but feel an odd freshness or reality in the content presented long ago. The writers, now long dead, were responding to very critical issues impacting the military and the nation. Sometimes, it is easy to take that for granted.

I guess this is where the parallel with my analogy using food—chutney—comes to focus. Without sounding silly, I can imagine 17th and 18th century workers using stone mills, primitive by today’s standards, painstakingly grinding and mixing special spice recipes to uniquely match the palates of the time. Just as those tastes of yesterday become real today once they touch the tongue, these hallmark ideas about a professional military resonate today when they become more than words in a history book.

So the thought continues with the new. And the new, of course, comes with the nation’s current situation as we draw down from our most recent wars and look to future stability. The defense strategy announced

Retired astronaut John Glenn (left), the first American to orbit the Earth, joins COL Timothy Coffin, deputy commanding general for operations at U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, at Cape Canaveral, Fla., a few days before the 50th anniversary of Glenn's Mercury flight.



by the President, Secretary of Defense, and Joint Chiefs of Staff Chairman earlier this year opened the national discussion on the topic. There are so many ways that today's communication environment is much more dynamic and different from 150 years ago. Yet the three points I picked up from the antique paper remain: 1) Pride in collaboration or partnership, 2) continued necessity of a profession of arms, and 3) communication helps mature the profession.

We will focus our next edition on the topic of the new defense strategy in terms of decisive force, but for now, consider what our historic and modern-day Army has provided to the nation—and, more importantly, what that means for our future. That is the point of this column and this edition's cover theme, Space Pros: Key Players "Always in the Title Game."

I have no idea if this column feels forced by the headline writer or if it clearly makes the point. Maybe connecting fresh fruit with the current world situation seems a little contrived. Maybe it fits better to tie aged spices to the touch of old newsprint, but still there may be a tough stretch to mixing a food concoction with serious national security concerns and our current condition.

So let me make one final attempt at making things work. It comes by way of Facebook. COL Tim Coffin, our deputy commanding general for operations, posted a picture of John Glenn and him mugging for the camera a few days before the 50th anniversary of Glenn orbiting the Earth (Feb. 20, 1962). Think of what the broad Space community has brought to the nation in the past. Think of the opportunities in the future.

How's that for chutney?

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Mike Howard via Gary Kieffer

Here's a clip on it. I was not sure how this would go ... but I was actually quite impressed. There is a communication theory ... diffusion of information ... for dealing with change or paradigm shifts. The Pentagon and White House seemed to follow that approach to start the debate and prep for the release of the budget plan.



Obama announces Pentagon budget cuts
content.usatoday.com

President Obama announced a new military strategy on Thursday that will cut the Pentagon budget by hundreds of billions of dollars over the next decade.

Share · 2 hours ago ·



Mike Howard via National Center for PTSD - U.S. Department of Veterans Affairs

This is more like it on the PTSD bit.



Acting Helps Soldier Cope With Post-Traumatic Stress Disorder
www.nytimes.com

Matthew Pennington has learned to live with the physical wounds of war, but a role as a soldier in a movie is helping him cope with post-traumatic stress disorder.

Share · 3 hours ago ·



Mike Howard

In the follow-on Q/A, the point about a shift from the Pentagon's traditional approach to the budget was great. Previous: Services submit their plans and the Pentagon shapes a strategy from those. This Time: Pentagon develops the strategy that serves as the compass for the Services. This turn-about is a very, very good step.

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John Smith likes this.



Mike Howard

watching the press conference on defense strategy. I think General Dempsey handles the question of two-war scenario very well ... his point about following the multiple conflict approach in the past is kind of the backbone for the future is pretty succinct. This is a tough deal ... provide national security in the future with fiscal issues in a very complicated world without introducing softness. Impressed how he and the SecDef are handling this matter.

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Mike Howard on Facebook
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LTG Richard
P. Formica

Commanding General

USASMDC/ARSTRAT

the Leading Leadership Updates Edge.

2011 Achievements / 2012 PRIORITIES

In this issue of the Army Space Journal, I will share with you an excerpt from a recent speech that I gave at the Air, Space, and Missile Defense Association annual membership luncheon in Huntsville, Ala. It provides U.S. Army Space and Missile Defense Command/Army Forces Strategic Command accomplishments from 2011 and the priorities we are setting for the command in the year ahead.

Last year I introduced our organizational vision and three core tasks. That speech set the themes for the command for the year. I'd like to do the same thing this year by highlighting key activities in 2011 and sharing our priorities for 2012.

In 2011 we streamlined the command by creating a Deputy position, merging two organizations to become the Technical Center, and realigning the Contracting and Acquisition Management Office under Army Contracting Command. We synchronized USASMDC/ARSTRAT with the Joint Functional Component Command for Integrated Missile Defense (JFCC IMD), sustained close, collaborative relationships with the Missile Defense Agency, and sought opportunities to nest our activities with the Army enterprise and improve relationships with our stakeholders.

Our first core task is providing trained and ready Space and Missile Defense forces and capabilities in service to Warfighters and the nation, our operations function (capabilities we provide today). We deployed 12 Space support and commercial imagery teams to the U.S. Central Command theater, with more than 70 teams deployed since the beginning of combat operations in Afghanistan and Iraq. USASMDC/ARSTRAT supplied Space and Missile Defense capabilities to 15 combatant commander, Warfighter, and mission rehearsal exercises.

Space and Missile Defense capabilities are critical

to the Army as a decisive force and the Army's ability to execute unified land operations. If the Army wants to be able to shoot, move, and communicate—it needs Space.

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We formally activated the AN/TPY-2 Forward Based Mode Radar Missile Defense detachment in Japan and activated and deployed a detachment to Turkey, as part of the Phased Adaptive Approach. The Friendly Force Tracking

mission management center submitted data to joint, inter-agency, and coalition forces around the world, supporting command and control and situational awareness, and tracked half a million locations a day. We provided geospatial intelligence and tailored satellite imagery products to U.S. Africa Command in support of Operation

Unified Protector in Libya and U.S. Pacific Command in support of Operation Tomodachi in Japan. The California-based Wideband Satellite Communications Operations Center relocated to a new location in Hawaii

The command's second core task is to build future Space and Missile Defense forces—our capability development function (capabilities we provide tomorrow). We provided Space and Missile Defense input to inform and influence the Army 2020 Task Force, Army Capstone Concept, Army Operating Concept, Warfighting Functional Concepts, and Profession of Arms campaign. USASMDC/ARSTRAT led the Army's effort to draft an Army Space Operations White Paper, which will lay the foundation for determining future Space capabilities for the Army.

The High Altitude Test Bed Aerostat supported the Army's Network Integration Evaluation and helped mature the Army's tactical network. We expanded our efforts in ballistic Missile Defense training and embarked on a task to integrate Space knowledge into Army leader and Soldier development courses. We worked with the Missile Defense Agency (MDA) and the Army to continue the integration of the AN/TPY-2 FBM radars and command and control systems and deliver this important capability as part of the Ballistic Missile Defense System. We provided modeling and simulation, studies, and analysis in support of U.S. Strategic Command (STRATCOM), MDA, Army Cyber Command, and other agencies.

The third core task is researching, testing, and integrating Space, Missile Defense, cyber, directed energy, and related technologies—our materiel development function (capabilities we provide the day after tomorrow). We successfully orbited the Army's first nanosatellite, the Space and Missile Defense Command-Operational Nanosatellite Effect. The High

Energy Laser Technology Demonstrator program completed fabrication and integration in early 2011 and finished low-power testing in December. The Long Endurance Multi-Intelligence Vehicle (LEMV) program completed fabrication and inflation in June and is progressing toward a first flight in early 2012, followed by deployment. We successfully conducted the first flight of the Advanced Hypersonic Weapon, thanks to the great teamwork of USASMDC/ARSTRAT, U.S. Army Aviation and Missile Research, Development, and Engineering Center, and Sandia National Laboratories.

We established a distributed operations capability at the new Reagan Test Site Operations Center-Huntsville, achieving full operational capability for Space operations and initial operational capability for test operations. The U.S. Army Kwajalein Atoll was named as one of six Net Zero Energy installations Army-wide with complete energy independence.

In summary, 2011 was a busy and productive year for USASMDC/ARSTRAT. In 2012 we'll continue to provide Space and Missile Defense forces and capabilities to STRATCOM, the geographic combatant commanders, and the Army.

You are well aware of the fiscal challenges we face. These will lead to force reductions and program changes, and will mean a different future for all of us. The recently published strategic defense guidance, "Priorities for the 21st Century," reminds us that we need to ensure we can operate in anti-access/area denial scenarios. We must have cross-domain synergy, with assurances that our forces can operate effectively in Space and cyberspace. And as the STRATCOM commander emphasized recently, we must be able to fight in domains without geographic boundaries.

Space and Missile Defense capabilities are critical to the Army as a decisive force and the Army's ability to execute unified land operations. If the Army wants to be able to shoot, move, and communicate—it needs Space. If the nation wants to be protected from rogue nations' ability to launch ballistic missiles—it needs Missile Defense. If joint forces want to fight in domains without geographic boundaries—they will need Space and Missile Defense. I believe exploiting the potential of Space and Missile Defense capabilities becomes even more important in an era where conflicts may take place in domains without boundaries and where forward presence may be reduced.

So while no one can speak of a growth industry these days, and no one will be immune from efficiency drills, I am confident that the Space and Missile Defense capabilities that USASMDC/ARSTRAT and JFCC IMD provide are more

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CSM Larry
S. Turner

Command Sergeant Major

USASMDC/ARSTRAT

the Leading Leadership Updates Edge.

The Role of a Professional

Throughout the year 2011, the Army has placed considerable emphasis upon the Profession of Arms and has gone to great lengths to educate its Soldiers and Civilian workforce about what it means to be a professional and a member of the Profession of Arms. Here at U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, we've gone a step further and also have placed emphasis upon the importance of being Space and Missile Defense Warriors/Professionals.

As Space and Missile Defense Warriors/Professionals, our Soldiers and Civilians must strive to exceed the exacting requirements of operating and maintaining Space and Missile Defense systems around the world. This means deploying as members of Army Space Support Teams and Commercial Imagery Teams to support Operations New Dawn and Enduring Freedom. It also means working 12-hour shifts as crewmembers supporting Space or Missile Defense operations.

To become a Space or Missile Defense Warrior/Professional, you must master highly specialized skills. The requirements vary depending upon the mission you're supporting, but one thing is certain. To be successful, you must successfully master and daily demonstrate proficiency in performing highly technical and unique skills. This holds true whether you're responsible for managing the communications payloads of Wideband Global SATCOM and Defense Satellite Communications System satellites, supporting combatant commanders as a Wideband SATCOM System Expert or as a member of a Regional SATCOM Support Center, constantly monitoring heat signatures for missile launches as a

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To be successful, you must successfully master and daily demonstrate proficiency in performing highly technical and unique skills.



crewmember at a Joint Tactical Ground Station, or serving as a crew member controlling our ground-based interceptors.

Our missions are fast-paced, often requiring us to make split-second decisions, to respond immediately. It doesn't matter if we are responding to a missile event or correcting an anomaly on a communications satellite payload. When presented with an event, we must respond based upon our training. We won't have the luxury of trying to figure out what's going on and how to respond, we won't have the time to ask, "Am I prepared, did I train enough, did I practice enough, to do my job right?" We will rely on our training and respond.

That's what professionals do. They train until things become habit. Professionals also work to develop error-free processes. We achieve "zero defects" by constantly working to refine the process so things can't go wrong when training is over and the event is real.

In the Profession of Arms, 236 years of experience has taught us that we improve through training and exercises. In the split-second world of Space and Missile Defense, this fact is doubly true. To meet mission requirements, we must train to an extremely high standard, and once we've achieved it, we must exercise constantly in order to maintain proficiency—to reach the point where we are Space and Missile Defense Warriors/Professionals.

Just to keep things interesting, you're also expected to exceed the high standards required of you as members of the Profession of Arms. Our Soldiers and Civilians must maintain the tactical knowledge and expertise required by the Profession of Arms as well as the technical knowledge and expertise required in their current positions. Our Soldiers in particular must maintain the highest level of technical knowledge and capability, while also maintaining the ability to deploy and fight. They must remain current on warrior tasks and battle drills (e.g., marksmanship training, physical fitness, and professional military education).

We currently have more than 850 Soldiers and Civilians supporting Ballistic Missile defense and Space operations who are United States-based, forward-stationed, or deployed. We recently deployed the next Army Space Support Team and Commercial Imagery Team into the U.S. Central Command area of operations, and have deployed 70 teams since the start of operations in Iraq and Afghanistan. The plus side of deploying our Soldiers and Civilians is that these highly trained teams use their skills and various systems to deliver Army and joint Space capabilities to commanders. The minus side is the fact that many of our Soldiers and their Families have endured multiple deployments over the past ten years.

I'm happy to report that our Soldiers and their Families continue to be resilient. They understand and accept the need to place service to country before self. I strongly feel that these Soldiers and their Families are living symbols of not only the Profession of Arms, but of what it means to be Space and Missile Defense Warriors/Professionals. I continue to be awed by their commitment to duty and the professionalism displayed not only by the Soldiers but by their Families as well. Hooah!

SECURE THE HIGH GROUND

The
Sun
Never
Sets on
USASMDC/
ARSTRAT



**Dr. Steven
L. Messervy**

Deputy to the Commander

USASMDC/ARSTRAT

Civilian Professionals

Critical to Our Mission Success

This will be my last article for the Army Space Journal as the Deputy to the Commander for U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. I want to use this space to publicly thank the men and women I've served with at USASMDC/ARSTRAT. The dedicated Soldiers and Civilians are top-notch professionals committed to delivering the best Space and Missile Defense capabilities to the nation and the Warfighter. During my tenure here, I witnessed a number of examples across the three functional areas of our command—operations, capability development, and materiel development—where the members of USASMDC/ARSTRAT were handed a challenging opportunity, and each time they worked and persevered until the best solution was developed.

Inside USASMDC/ARSTRAT, our Civilian professionals provide significant contributions to the command, the Army, and the Department of Defense. When I became the Deputy, I engaged other areas of the command and gained a better appreciation for how our uniquely organized command executes its three core tasks. I also learned more about the dedicated Soldiers and Civilian professionals involved in every aspect of our mission. This column will focus on the Civilian contribution as part of the Army team.

Our command's mission success depends on our operational and technically proficient team of experts. This level of expertise and professionalism is exactly what the Army Chief of Staff describes as being a member of the Profession of Arms, held to a code of ethics and trust placed upon us by the public. There is no doubt that the men and women of this command are members of the Profession of Arms; their efforts prove that

Civilian Professionals

Civilian professionals provide significant contributions to the command, the Army, and the Department of Defense.



every day. Notably, the commanding generals of USASMDC/ARSTRAT and Army Materiel Command agreed that Civilians should be included in the Army Chief of Staff's Profession of Arms study because the Civilian expertise is vital to the mission success of the Army. As a follow-on effort to the study, Army Materiel Command and USASMDC/ARSTRAT initiated an effort at Redstone Arsenal, Ala., home to the largest Civilian workforce population in the Army, to make Redstone a Civilian Center of Excellence. The vision is to ensure there is recognition of the talent of the Civilian workforce, along with a means to recruit, develop, and retain those essential capabilities for the Army.

Our operational forces depend heavily on their Civilian colleagues to plan, train, and exercise the command's Space and Missile Defense brigades. Civilians work to ensure our forces are trained and ready to provide Space and Missile Defense capabilities to the combatant commands and to the Warfighter. In 2012 our operations planning and exercise team includes Civilians who will support numerous planning conferences to prepare for the command's participation in more than ten Tier I combatant command or mission rehearsal exercises. Our Civilians also serve as force multipliers to enhance Space and Missile Defense knowledge with the exercise planners across combatant command staffs.

Civilians provide significant operational support to the Warfighter through the Friendly Force Tracking Mission Management Center, Geospatial Intelligence Division, and Satellite Communications Division, just to name a few. Each of these areas run either around the

clock or on extended/surge operations, with Civilians at the helm. Additionally, I would be remiss if I didn't acknowledge the talent of the G-6 information technology professionals who keep our networks running, our information protected, and ensure our leaders stay connected to the global 24/7/365 operations of our command. All of these capabilities are largely provided by Civilian professionals.

Also within the operations function of the command, Civilian professionals manage the Army Space Professional Development Office. This small team develops the policies, procedures, and metrics for the Army Space Cadre and executes the proponency life cycle management functions of the Army Functional Area 40 Space Operations officers, ensuring the Army has trained personnel to meet national security Space needs.

As part of our capability development function, in 2011 we began the final stages of deployment efforts for two of the Missile Defense AN/TPY-2 Forward Based Mode radars. These deployments to Turkey and U.S. Central Command are on an accelerated schedule in support of the U.S. Phased Adaptive Approach for Missile Defense. Thanks to the Missile Defense Agency, who took on the lion's share of the challenge to field a development system, these radars will be ready sooner than originally planned. That meant a "catch-up" challenge for the Army. USASMDC/ARSTRAT, as the proponent for global Missile Defense, has the responsibility to ensure these systems are deployed in a consistent

[Civilians Page 17 >>](#)



**COL Timothy
R. Coffin**

Deputy Commander
for Operations

USASMDC/ARSTRAT

A Year Root in History

The year 2011 had parallels in groundbreaking events 100 years ago for military communication and 50 years ago for Space exploration. A century ago in the United States, radio communication took place for the first time between an airplane and Army units on the ground. Turning to events in the Space realm, in 1961 Soviet cosmonauts and American astronauts took humanity's initial journeys beyond the Earth: Yuri Gagarin, Alan B. Shepard, Virgil "Gus" Grissom, and German Titov.

While these pioneers of Space have now departed, I had the opportunity last month to watch the countdown in the launch control room for the Atlas rocket carrying the first Mobile User Objective System (MUOS) to Space. Next to me stood astronaut, Marine, and Senator John Glenn, just one day shy of the 50th anniversary of being the first American to orbit the Earth. As we discussed the differences between 50 years ago and today it was clear we still live in an age of opportunity with many firsts yet to be achieved.

The historic happenings of 1911 and 1961 are linked to notable firsts in U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. Let's take a look at some USASMDC/ARSTRAT accomplishments and contributions last year—and how several of them are related to other events in history.

First, progress in military communication. In 2011 our command had two noteworthy events demonstrating the power of modern-day communications. In January the Army's newest satellite, the SMDC-ONE nanosatellite, completed its mission after a 35-day flight. SMDC-ONE was the first Army satellite launched in 50 years. It demonstrated the possibility of transmitting data between unattended ground sensors and small receiving stations, an important step in creating more powerful communication links between tactical forces. The next month a ribbon-cutting ceremony in Wahiawa, Hawaii, for the first-ever Wideband Satellite Communications

Expertise, knowledge, & dedication of all members of USASMDC/ARSTRAT made 2011 a tremendous period of progress and service.

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Operations Center heralded the latest enhancement of Space-based communication for the U.S. military. The state-of-the-art center and its planned counterparts in Maryland, Germany, and Japan are the payload managers for satellite communication systems that deliver billions of bytes of information in a second.

Next, advances in Space exploration. Five decades after the original Space pioneers launched into the cosmos, their peers in the U.S. Army are accomplished members of the USASMDC/ARSTRAT astronaut detachment at the Johnson Space Center, Houston, Texas. In 2011 LTC Mark Vande Hei became a full-fledged Army and NASA astronaut after completing a multiyear program of rigorous training. COL Doug Wheelock, the Army's senior astronaut just one year after being the Army's first commander of the International Space Station, flew sensor missions in Afghanistan with a Defense Advanced Research Projects Agency payload in support of U.S. troops on the ground. Additionally, in November the command flight-tested an atmospheric vehicle, the Advanced Hypersonic Weapon, proving that not only does the Army do rocket science—but that we do it well. We can rightfully take pride in that successful event where other agencies previously struggled, bringing to mind the events leading up to the Army's achievement in launching the first American satellite, Explorer I, in 1958.

Back on Earth last year, USASMDC/ARSTRAT showed our flag in support of many humanitarian and military operations. The Army's satellite communications (SATCOM) and Space-based geospatial intelligence assets played big roles when a tsunami and tornadoes rocked the command's world. We pulled together on behalf of neighbors and strangers alike when disasters struck Japan and the southeastern United States—including Huntsville, Ala., home to our senior leadership, research and development center, and many agency and industry partners. On a personal level, USASMDC/ARSTRAT employees contributed time, money, and resources to help people and communities in the disaster zones.

Within hours of the devastating Japanese earthquake and tsunami, the 53rd Signal Battalion's Regional Satellite Communications Support Center for the Pacific region, which manages Department of Defense SATCOM requirements, changed priorities in support of U.S. Pacific Command. The center increased SATCOM access for relief forces by more than 600 percent, while CPT Erol Munir from the Joint Tactical Ground Station detachment in Japan helped lead

convoys with relief supplies. Our specialized geospatial intelligence center used satellite imagery and special exploitation techniques to assess damage to the Fukushima nuclear power plant and its continued impacts. Geospatial data also showed that the berthing area near the plant was clear of debris, allowing U.S. Navy vessels and equipment to enter the next day. In Alabama, following a wave of deadly tornadoes, geospatial specialists from the Future Warfare Center plotted damage paths in partnership with the Civil Air Patrol and state emergency agencies. This information helped authorities send aid to those locations where it was needed most.

Remembering that people are the Army's most important element, command leaders took part in grand-opening ceremonies for the new community activity center at Fort Greely, Alaska—a deployment site for the Ground-Based Midcourse Defense system. Family members, Soldiers, and Civilians of the 49th Missile Defense Battalion now have a bright, spacious place for high-tech bowling, club meetings, tasty meals, and all-around relaxation and entertainment. Also, the 1st Space Brigade moved to new headquarters, allowing quicker and easier collaboration between its battalions and staff elements. Their neighbor and partner across the street is the 100th Missile Defense Brigade.

The expertise, knowledge, and dedication of all members of USASMDC/ARSTRAT made 2011 a tremendous period of progress and service. As always, I am grateful that the people of the command safely and effectively completed many deployments and travels throughout the United States and the world. We said “come back soon” and “welcome home” multiple times as Soldiers and Civilians took on missions and exercises in Iraq, Afghanistan, Germany, and Australia, among other places.

Gen. C. Robert Kehler, commander of U.S. Strategic Command, recently made mention of a Chinese saying, “May you live in interesting times.” It usually is interpreted as a curse. I want to turn it into a blessing. May each of you enjoy and excel in the interesting times in which we live.

SECURE THE HIGH GROUND



Larry Burger

Director

Future Warfare Center

A Vision for Future Success

The United States has been the world leader in Space since the early 1960s. However, the nation cannot rest upon the accomplishments of the past 50 years to ensure success in the future. A forward-leaning vision for Space and Missile Defense capabilities is an important element of the Army and the nation's future success. The Future Warfare Center within U.S. Army Space and Missile Defense Command/Army Forces Strategic Command has a big role in ensuring America develops Space capabilities to deter threats against and defend U.S. national interests. Without a cadre of capable and dedicated Space professionals, this simply will not happen.

The Future Warfare Center presents Space and Missile Defense doctrine and education designed to enhance the Army's combat effectiveness by conducting Army Space operations and integrating Space into Army operations. As the American military moves toward the Joint Force of 2020 envisioned by the President and Secretary of Defense and defined in the January 2012 document "Sustaining U.S. Global Leadership for 21st Century Defense," USASMDC/ARSTRAT will be instrumental in providing Space and Missile Defense capability for the nation.

As the "schoolhouse" for Army Space and Missile Defense, the Future Warfare Center's Directorate of Training and Doctrine (DOTD) instructs Soldiers and Civilians. The Army's Officer Education System, Warrant Officer Education System, Noncommissioned Officer Education System, and Civilian Education System all have focused programs that incorporate leader development. A similar focus is a core component in all DOTD education and training courses. Institutional training and education provide initial skills and subsequent functional and professional education. These steps teach key competencies, instill Army Values, and teach officers, Soldiers, and Civilians to be competent and confident leaders to meet the Army's need to

Concepts for Tomorrow in Space & Missile Defense were the focal point of the Future Warfare Center in 2011.



develop adaptive, critical thinking Soldiers and leaders capable of meeting the challenges of operational adaptability in an era of persistent conflict.

One example of DOTD contributions is the Space Operations Officer Qualification Course (SOOQC). Guided by the concepts of the Army Learning Model 2015, the DOTD cadre trains Functional Area 40 Space Operations officers and

Soldiers to refine their abilities to explain the relevance of Space to operations both in written and oral communications. The SOOQC has specific graded blocks of instruction on the development of staff skills, and a staff package that uses the USASMDC/ARSTRAT document templates to stress the use of approved formats. The students complete a five- to ten-page research paper on Space topics chosen and evaluated to enhance technical writing and how well the students explain their topic in Warfighter terminology. Lastly, the SOOQC cadre conducts “elevator brief” sessions where a student is required in 60 to 90 seconds to explain a Space topic or problem to a non-Space senior leader (the Army Chief of Staff or G-3, for example). The term “elevator brief” was derived from the instance of an opportunity to get leadership’s attention and succinctly brief them while confined in an elevator ride of short duration. Success is measured in terms of

- Mastering the technical aspects of Space-based capabilities
- Mastering the critical role Space-based capabilities play in enabling the Warfighter
- Mastering the critical role Space-based capabilities play in the current land component mission or operation
- Analyzing and articulating in Warfighter’s terms the “so what” or importance and impact of the critical Space-based capability

This is an important aspect presented in all DOTD courses, from the Space and Missile Defense fundamental course to equipment-specific Initial Qualification Training courses to advanced courses such as the SOOQC.

Upon the completion of 11 weeks of technical focused learning and now possessing that skill set, FA40 students

in SOOQC are thrust into the three-day end of course Command Post Exercise where they demonstrate the leadership skills emphasized in the prior ten weeks in balance with their technical acumen. The exercise is structured utilizing current U.S. Central Command campaign and operational plans. A battle staff is formed from retired general officers with Space, staff, and operational backgrounds, senior Army FA40s, and other services’ Space professionals. Students role play various positions in Space echelons (division or corps Space Support Element, director of Space forces staff, Army Space Support Team, etc.) and are subjected to a gamut of challenging scenarios and vignettes.

The Space Officer Operations Qualification Course is a prominent part of the Future Warfare Center Directorate of Training and Doctrine’s lengthy educational catalog. In 2011 more than 3,200 military and Civilian students completed Army Space and Missile Defense education through DOTD. On the doctrine side last year, the center authored operational analyses that have been key enablers to USASMDC/ARSTRAT, Army, and joint leaders as they made decisions to shape the force in the near and far term. Examples of studies impacting key decisions include the Ballistic Missile Defense Planning Order, Missile Defense Agency Business Case Analysis Air Breathing Threat Study, Tactical Space Protection Study, and the Tactical Satellite 3 Joint Military Utility Analysis.

The Future Warfare Center in 2011 was the focal point for the command’s capability development function—putting together what needs to be in place for “tomorrow” in Space and Missile Defense. We look forward to 2012 and years to come after that in meeting the coming challenges and needs of America’s national security through Army Space and Missile Defense.

SECURE THE HIGH GROUND

The
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Debra G. Wymer

Director

Technical Center

TECHNICAL EXPERTISE & Dedication

The Technical Center (TC) is responsible for U.S. Army Space and Missile Defense Command/Army Forces Strategic Command's third core task: researching, testing, and integrating Space, Missile Defense, cyber, directed energy, and related technologies (day-after-tomorrow). This is our command's materiel development function.

One of the TC's focus areas for materiel development is in the area of nanosatellites. Since the successful spaceflight of the first SMDC-ONE satellite a year ago, the TC's Space and Cyberspace Directorate-Responsive Space Division has been busy readying the remaining nine SMDC-ONE communications nanosatellites for flight as well as planning and developing new satellites to support the ground component Warfighter. SMDC-ONE was the first U.S. Army-developed satellite in 50 years and exceeded expectations as it provided communications relay and unattended ground sensor data exfiltration.

In 2011 the Army submitted three Responsive Space Division demonstration satellite programs to the Department of Defense Space Experiments Review Board (SERB) for spacelift: Kestrel Eye, a low-cost imaging satellite; SNaP-3, a low-cost, advanced communications satellite configuration; and Operationally Responsive Space Enabler Satellite (ORSES). ORSES is a joint program with the Operationally Responsive Space Office featuring an SMDC-ONE satellite bus with an advanced Software Defined Radio and Type-1 encryption module. Of the 63 candidate proposals submitted to the SERB, the three USASMDC/ARSTRAT programs were all ranked in the top seven on the 2011 SERB Priority List.

The Technical Center also has several materiel development initiatives in high-energy lasers, primarily supporting the Missile Defense/Counter Rockets, Artillery, and Mortar mission area. The Army, in cooperation with the High Energy Laser Joint Technology Office, was the first to generate more than 100 kilowatts of power from a solidstate laser (SSL). This laboratory laser is the cornerstone of the Solid State Laser Test Bed, which

Supporting Warfighters, with relevant Space & Missile Defense related technology to enhance the mission and save lives.



on

is leveraging existing assets to characterize high-power laser beam propagation and conduct both static and dynamic lethality engagements against a variety of targets. The joint Robust Electric Laser Initiative (RELI) is developing the next generation SSL that will be compact, efficient, and rugged for mobile use. The High Energy Laser Technology Demonstrator

(HELTD) is in the midst of acquisition and tracking testing against rocket, artillery, and mortar targets at White Sands Missile Range, N.M. The HELTD has a prototype beam control system and a user interface to its functioning battle management, command, control, and communications system. The High Energy Laser Mobile Demonstrator effort will integrate SSL Test Bed experimental data, RELI lasers, the HELTD platform, and other technology products under development into progressively more powerful weapon-capable demonstrations for counter-rocket, artillery, and mortar; counter-unmanned aerial systems; and counter-sensors applications.

The Advanced Hypersonic Weapon (AHW) is a technology demonstration program in support of the Department of Defense's Conventional Prompt Global Strike Program. The Technical Center served as the program manager for the Office of the Secretary of Defense and U.S. Strategic Command. The payload delivery vehicle for the AHW is the Hypersonic Glide Body (HGB). The HGB encompasses a number of new technologies with wide applicability across the entire spectrum of conventional Prompt Global Strike. The focus of the first flight test of the HGB was on thermal protection systems, internal thermal management, advanced navigation, guidance, and control concepts, and data collection. The development of the HGB was a collaborative effort between Sandia National Laboratories, the U.S. Army Aviation and Missile Research Development and Engineering Center, and the Technical Center. The first flight of the AHW took place Nov. 17, 2011. The AHW was launched from the Pacific Missile Range Facility in Kauai, Hawaii, and flew to the Reagan Test Site at U.S. Army Kwajalein Atoll, Republic of the Marshall Islands. Initial review of the collected data suggests that the AHW met all of its test objectives.

The Reagan Test Site (RTS) is managed by the USASMDC/ARSTRAT Technical Center. It also achieved

several milestones in 2011. In September RTS Space Operations declared full operational capability in Huntsville, Ala. After several years of planning, and an execution timeline that spanned the last two years, RTS is now conducting 100 percent of its tasked U.S. Strategic Command Space Situational Awareness support missions from the RTS Operations Center-Huntsville. Successfully bridging a geographical gap of more than 7,300 miles and 18 time zones, all four Kiernan Reentry Measurement Site sensors (ALTAIR, TRADEX, ALCOR, and MMW) located on the island of Roi-Namur in the Marshall Islands are now fully commanded and controlled for RTS Space Operations from Huntsville via two diverse fiber optic paths.

Another significant accomplishment was the upgrade of the Millimeter Wave (MMW) radar. MMW was upgraded from 2 GHz to 4 GHz, making it the highest resolution imaging radar in the world. This improvement increased RTS's imaging resolution capability from 12 centimeters down to six centimeters. As a contributing sensor in the Space Surveillance Network, RTS now provides the highest resolution radar images for Space Object Identification of any asset in the network. Combined with its unique geographic location, this makes MMW a true national asset.

As we move into a new year, 2012 holds lots of promise for the command's materiel development efforts. The Long-Endurance Multi-Intelligence Vehicle will conduct its demonstration, we will continue our advancements in small satellite work to be prepared for a launch and technology demonstration, and we will move forward for next steps with the AHW program. These are just some of the highlights that reflect the technical expertise and dedication of the men and women supporting the Technical Center. Our goal is to provide relevant Space, Missile Defense, directed energy, and related technology that supports Warfighters, enhances their mission success, and ultimately save lives.

SECURE THE HIGH GROUND

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From Achievements

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relevant than ever. We have a great team providing those capabilities today, tomorrow, and the day after tomorrow.

Priorities for 2012.

We must remain focused on accomplishing our three core tasks while being disciplined stewards of the nation's resources. It's what we do. We must ensure our command's activities are nested with STRATCOM and Department of the Army campaign plans. We will synchronize our USASMDC/ARSTRAT and JFCC IMD campaign support plans with the STRATCOM and Army campaign plans, and subsequently align our command priorities with theirs.

In our operations function, we will continue to provide Space and Missile Defense forces and capabilities in support of the combatant commands and Warfighters. On any given day, we have approximately 850 operational forces supporting the Ballistic Missile Defense System and Space operations around the world: United States-based, forward-stationed, or deployed. That includes five Space support and commercial imagery teams currently deployed. We will deploy another eight teams in 2012 as part of the Army's nine-month deployment cycle.

We will provide Space and Missile Defense forces in support of 11 combatant command, Warfighter, and mission rehearsal exercises, including STRATCOM's Global Thunder and Global Lightning. These events provide an opportunity to train the way we plan to fight in all our mission areas and ensure we are prepared for crisis operations. Our satellite communications operations and planning support, Joint Tactical Ground Station in-theater missile warning, and Friendly Force Tracking will continue to provide critical capabilities to the geographic combatant commanders. We must maintain the level of support we provide today and look for ways to exploit more capability from those assets.

In 2012 we will complete a modernization project for our Fort Detrick, Md.-based Wideband Satellite Communications Operations Center, with modernization under way at two other sites at Fort Meade, Md., and Landstuhl, Germany. We will continue to work with MDA and the Army to deploy the next AN/TPY-2 FBM radar, as part of the Phased Adaptive Approach.

In our capability development function, we have several Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities efforts that are important to the Army in 2012. We will inform and influence the

Total Army Analysis and the Army 2020 study by working closely with Headquarters Department of the Army and Training and Doctrine Command to integrate Space, high altitude, and Missile Defense capabilities in support of future Army operations. We will complete the Persistent Platform Capabilities Description Document. This will provide a basis for requirements for the Army regarding high altitude platforms.

We will, as directed by the Army Space Strategic Plan, complete the Space Operations White Paper and also provide recommendations based on our assessment of Space Knowledge Training for the Army. We will complete transition of the Ground-based Midcourse Defense Operators Course from MDA to the Army and teach more than 2,800 Space and Missile Defense Soldiers, Civilians, and joint service members. And we will continue to provide studies and analysis support to help inform Army and joint operational and program decisions.

In our materiel development function, we have several milestones in 2012 for key efforts. They start with preparing for the deployment of the LEMV to theater; first flight of our low-cost ballistic missile target alternative, the Economical Target-1, in February; and the initial high-power demonstration of the High Energy Laser Mobile Demonstrator with a 10 kW laser. We also will progress toward nanosatellite demonstrations, including the National Reconnaissance Office-sponsored Operationally Unique Technologies Satellite launch this summer; provide innovative technology in support of the Joint Improvised Explosive Device Defeat Organization; and sustain Space tracking operations and test support at the U.S. Army Kwajalein Atoll/Reagan Test Site, as we develop an Army strategy for long-term sustainment of this strategic asset.

Epilogue

Publishing this foundational speech in the Army Space Journal provides our readers information about what occurred in 2011 and the direction USASMDC/ARSTRAT is heading for 2012. I am very proud of the great team of Soldiers, Civilians, and contractors who accomplish our mission, in concert with our partners in industry, academia, allies, and other federal agencies.

SECURE THE HIGH GROUND

From Civilians >> Page 9

fashion, resources are planned and provided, and forces and equipment are trained and ready to operate when needed. Civilians were at the heart of this effort, working to resolve challenges that popped up every day, such as force structure, resources, training, environment, life support, and host nation sensitivities. Their subject-matter expertise and organizational knowledge helped Soldier and Civilian leaders work through the challenges and ensure the radar and operators were trained and ready to meet the President's schedule for the deployment.

In our materiel development function, we have a team of Civilians and Soldiers hard at work to bring another high visibility program to bear—the Long Endurance Multi-Intelligence Vehicle. This first-of-its-kind hybrid airship has been on an accelerated prototype development schedule, and we are planning for a first flight in early 2012, followed by range testing in the spring. This effort is one of USASMDC/ARSTRAT's priorities for 2012, and the entire command is contributing resources to support the Department of Defense's battlefield requirements for persistent surveillance. Led by our Technology Center, the team leans hard on its Civilian expertise to provide operational, technical, and analytical support to ensure the vehicle is able to meet Warfighter requirements and enable mission success on the battlefield.

Additionally, our Civilians, working with several organizations outside the command, apply their technical, engineering, and management skills on programs such as the Advanced Hypersonic Weapon, whose first flight in November 2011 exceeded all test expectations. Our counter-improvised explosive device work continues to help save lives on the battlefield. These new technologies will help our commanders maintain a decisive edge on the battlefield.

In summary, the work of our Civilians in USASMDC/ARSTRAT is critical to our mission success and an integral part of the Profession of Arms. What we do may not be well known by Soldiers on the battlefield, and may be seen as part of that reach-back capability they know is there, but the Soldier's mission is enabled by what we do every day—deliver Space and Missile Defense capabilities to the Nation and to the Warfighter. It has been my honor to serve with you for the past three years.

SECURE THE HIGH GROUND



Dr. Steven L. Messervy talks about the Swiss army knives he was about to present to his father and four sons at his retirement ceremony. *Photo by Carrie E. David*

On to the Next Mission

Dr. Steven L. Messervy officially retired in February 2012 as the Deputy to the Commander of the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. Dr. Messervy has more than 30 years experience in the research, development, and acquisition business. He also was a colonel in the U.S. Army Reserve, completing group and brigade command tours.

The
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SPACE PROS

Key Players
**'Always in the
Title Game'**

BY DOTTIE WHITE & RACHEL L. GRIFFITH,
USASMDC/ARSTRAT PUBLIC AFFAIRS



Earth's military and political hot spots are pretty obvious when you look at a map of assets belonging to the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. Sixteen locations form a line that runs east to west, from Japan and Korea, across the Mideast and Europe, to California and Hawaii. The line also dips into the Pacific Ocean for the command's Space radar and test site at Kwajalein Atoll and swoops into Alaska for the Missile Defense installation at Fort Greely.

USASMDC/ARSTRAT operations located along the line have easy connectivity to all the regions represented by the Department of Defense's unified commands. In an era of persistent warfare and rogue nations, Afghanistan and its neighbors are key places. Within that region, the command's 1st Space Brigade supplies Space-based expertise and products to U.S. and allied forces in Afghanistan, while the 100th Missile Defense Brigade is on constant watch against missile attacks.

The Army Space Journal invites you to tour the command's world. We start with words of welcome from the brigade commanders, then visit customers across the globe.

The Globe Visited

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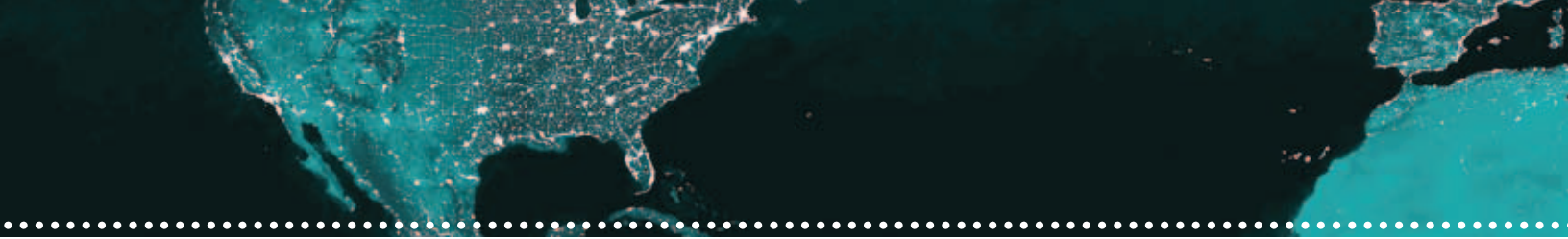
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GLOBAL SUPPORT

Command's Brigades Trained & Ready for Worldwide Customers

1st Space BRIGADE

Space Support

provides communication and navigation, anticipates weather, and protects forces based on combat and support assets available from Space.

Satellite Communications

provides worldwide, high-volume, voice and data communications necessary to the Warfighter.

In keeping America and its allies safe, the sun truly never sets on Soldiers of the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command.

As the Army's proponent for Space and ground-based midcourse defense and the operational integrator for global ballistic Missile Defense, USASMDC/ARSTRAT has a number of units around the globe affiliated with the 1st Space Brigade and 100th Missile Defense Brigade.

The 1st Space Brigade provides 24-hour satellite communications support and early missile warning around the world. In the Europe and Pacific regions specifically, the brigade has two primary Space support missions, according to COL Eric P. Henderson, its commander.

"One is enduring and the other is on call," Henderson said. "Soldiers at forward-stationed units such as Joint Tactical Ground Stations, or JTAGS, and Wideband Satellite Communications Operations Centers live day in and day out within the European Command and Pacific Command regions. They are a part of the tactical, operational, and strategic community providing early missile warning and satellite payload control.

"Additionally, deployable units such as Commercial Imagery Teams and Army Space Support Teams, residing within the brigade, stand ready to deploy on short notice to support operational plans to units that reside in these two areas of operations," he added.

Definite technical skills are required of Soldiers assigned in these two fields.

"These Soldiers must be proficient in both operational and maintenance areas of expertise," Henderson said. "Soldiers with innate leadership and unflappable demeanor are the norm within these mission areas."

Henderson proudly described his brigade's mission as unique.

"There is no '2nd Space Brigade.' We are a one-of-a-kind organization with a vast global area of influence," he said. "The Soldiers, Civilians, and contractors on my team do not have the luxury of 'taking a knee' while someone else or some other Soldier performs the mission that is ours. We are the provider of 'trained and ready' Space and Missile Defense forces for this command. It is not a mission that is taken lightly."

Another element of the command, the 100th Missile Defense Brigade (Ground-based



Midcourse Defense), is responsible for providing trained and ready Missile Defense forces to the commander of U.S. Northern Command in support of the mission to defend the United States against ballistic missile attacks.

We do this by operating key command and control nodes in Colorado, Alaska, and California 24/7/365 with highly trained and certified Soldiers,” said COL Gregory S. Bowen, brigade commander. “In addition to operating the global missile defense system, the 100th is responsible for protecting and securing the Missile Defense Complex at Fort Greely, Alaska. The military police from Alpha Company, 49th Missile Defense Battalion conduct the security mission 24/7/365, enduring all of the weather extremes the interior of Alaska has to offer.

“Finally, the 100th is a force provider for the AN/TPY-2 radars,” he added. “These radars provide fire control data to the global missile defense system as well as supporting regional operations in several geographic combatant command areas of responsibility.” AN/TPY-2 radars are located in Japan, Israel, and Turkey.

Bowen says that being the only Missile Defense brigade in the U.S. military brings challenges.

“Most Army units train, deploy, and perform their mission, then return home and reset. In contrast, the 100th is essentially deployed in place, executing its wartime mission 24/7/365,” Bowen said. “We never get the down time, and as a result, we don’t ‘fit’ well into what the rest of the Army is doing.

“Certified ground-based midcourse defense operators are a very scarce commodity; at any given time, there are about 75 Soldiers certified to operate the system,” he added. “Managing the careers of these low-density specialists is one of the critical challenges we face.”

Bowen said the training and mastery of the system are paramount as this is a no-fail mission.

“Beyond the tactical and technical skills you would expect the Soldiers to have, they must display a high level of commitment to the mission,” he said. “We have a very demanding certification program which the GMD operators must complete every six months in order to remain qualified.

“There are similar programs for the military police and for the Soldiers in the radar detach-

ments,” he added. “The commitment comes into play as the Soldiers battle complacency. There are threats out there, so the Missile Defense crews and the MPs must maintain a very high state of readiness at all times, and under all types of conditions. They maintain this ‘razor’s edge’ of readiness without any fanfare or accolades. They are quiet professionals who are doing a critical job on behalf of our nation; our citizens can go to sleep at night knowing they are out there, ready to defend the homeland at a moment’s notice.”

These two unique brigades provide support to numerous customers around the globe. Some of these customers spoke highly of the brigades’ unique abilities in support of the Warfighter.

JTAGS detachments are located in Germany, Qatar, Japan, and South Korea. They supply real-time reporting and tracking of tactical ballistic missile launches to theater and national commanders by processing infra-red data from Defense Support Program and Space-Based Infrared System satellites.

“Simply put JTAGS is indispensable for this base. Every second counts,” said Air Force Col. Van A. Wimmer Jr., vice commander of the 35th Fighter Wing at Misawa Air Base, Japan.

“You can imagine how amazed the command and I were when we got here and understood what JTAGS was, never having been exposed to what they do. But then also to know they understand the threat to us and give us a lot of instruction. They pick up the phone and call us directly to give us that warning, and they get it before anyone else.”

“JTAGS Korea has a 24-hour real world mission that compliments what we do here as a forward-deployed Patriot battalion. Their job is to provide early missile warning to the Korean peninsula,” said CSM Timothy D. Hockenberry, 6th Battalion, 52nd Air Defense Artillery Regiment, at Suwon Air Base, South Korea.

“Early missile warning for us is definitely something that we need. It benefits the systems we have organic to our battalion, anything that can extend the reach that we have. It allows our commander to determine which resources available to him are the better, or the best way, to combat that threat. We use it every day.”

100th Missile Defense BRIGADE

AN-TPY2 Radar System

protects deployed forces and allies from ballistic missile threats, it is designed to detect, track and discriminate ballistic missile threats.

Ground Based Interceptor Missile

The nation’s only long-range ballistic missile defense system. Designed to intercept incoming warheads in Space

They are quiet professionals who are doing a critical job on behalf of our nation; our citizens can go to sleep at night knowing they are out there, ready to defend the homeland at a moment’s notice.



HELPING THEM HELP YOU

Professional Development Office Works to Meet Customers' Needs

Mike Connolly is Director of the Army Space Professional Development Office for the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. The office provides talent management for Functional Army 40 (FA40) Space Operations officers and develops opportunities for FA40s across the Army and joint force structure, including USASMDC/ARSTRAT customers.

In today's world, Space is becoming normalized for many people. The early cadre of FA40s when the career field was first designated back in 1999 brought something new. We brought a capability that talked to Warfighters about Space-related capabilities, talked about satellites, whether it's communications or infrared detection. That was kind of new to the Army. Now, you go out to your car and you have GPS. Plug your ATM card into a machine and it's based on GPS. Space is normalized not only in the Army but in society. When there are operational Warfighters out there and they haven't thought about an aspect of Space, how it can support an operation, that's what the FA40s bring.

From an FA40 perspective and from the proponent side of the house, we are going to try to work with every organization that wants an FA40. We want to make sure we are getting FA40s to where the customer wants them. Operational commands are asking for FA40s on a recurring basis. For example, the special operations community came on line about 18 months ago to say they would like an FA40 at their group level. We have now worked through the process and those billets are documented on future manning authorization documents. That's a success story we have been able to do with the special operations community, the one that is most visible right now.

It's a very good news story for the Army Space community. Customers want FA40s. We continue to get phone calls, people saying, "I want an FA40 and am willing to do whatever it takes to get one." That's not a result of the work we are doing in this office. It's a result of the work the FA40s out in the field are doing. People are reacting and saying, "That's the kind of guy I need." The FA40s are doing great work.



1st Space Brigade Soldiers use access to satellites to ensure Warfighters on the ground receive the support they need. *Photos by Rachel L. Griffith*



THE CUSTOMER PERSPECTIVES



Middle East



CSM Marvin Hill

Interviewed while serving as Senior Enlisted Leader, International Security Assistance Force /United States Forces-Afghanistan

Our Soldiers are as technically savvy as they come. They are “real time” Soldiers. They are very comfortable with whatever we throw at them. The real challenge is providing the proper training prior to deployment that would allow the leaders to integrate the latest devices into their tactical plan.

I’m not sure if knowing who provides Space and Missile Defense capabilities is all that important to Soldiers. They know that it works. They know that there are far more capabilities to forge the fight, provide force protection, and locate potential threats than there were during their last deployment. They are familiar with the menu and often select the appropriate tools from the menu.

I am aware of both elements—JTAGS in Qatar and the Army Space Support Teams in Afghanistan. It’s kind of hard to comment on a unit whose job is to keep stuff from happening. In all fairness to JTAGS, Missile Defense was not one of the things that kept me up at night. Unfortunately for them, they do not have the pleasure of saying, “My bad, it won’t happen again.” They are always in the title game.

We are making tremendous strides in Afghanistan. Our troopers have defined winning in their areas. Winning is something that we can apply a cookie-cutter approach to. They know what it takes to provide a safe and secure Afghanistan that is secured by the Afghanistan National Security Forces. They are getting there. Yet, they also understand how fragile and reversible their progress can be.

Col. Clinton Crosier, USAF

Director of Space Forces in Afghanistan



It’s been my experience that our Army Space pros are excellent planners and doctrinal thinkers with diverse backgrounds and experiences. Our Air Force Space pros bring capability-based knowledge and expertise from their work with the actual satellite systems. This combination makes the Space team extremely effective. A team of joint Space operators is exponentially more effective than a single-service team. Throw in interagency disciplines from our intelligence community, and we have a truly operational think tank. Senior officers often have commented on the innovative atmosphere in the DIRSPACEFOR shop. I attribute that directly to the diversity of our shop and our ability to share information and ideas across disciplines and across components.

Information sharing has come a long way over the last ten years. Ten years ago, National Technical Means was a foreign concept to tactical units. Satellite communications was only available to higher echelon headquarters. Blue Force Tracking was in its infancy. It’s hard to believe how far we’ve come. I think our overall efforts to integrate Space across the warfighting functions have enabled this fundamental shift to how we handle data.

We are capable, collectively, of producing a myriad of Space force enhancement products and Space control effects to address challenges at the tactical, operational, and strategic levels. However, Space elements are typically small and resource limited. We cannot be everywhere all the time. Our challenge is to be at the right place at the right time with the right information to make the biggest impact. We can optimize our value through the planning process—planning to the left, as we call it.

Mastery of our tools is an important skill in warfare. We’ve found that our tools can be used in ways for which they were not designed. You can get more juice per squeeze if you open up to new ideas. We’ve tried to create an atmosphere where mission accomplishment serves as the catalyst for the application of technology. Technology does not accomplish the mission; people do!

Europe



CSM Thomas Capel

Former Command Sergeant Major, U.S. Army Europe

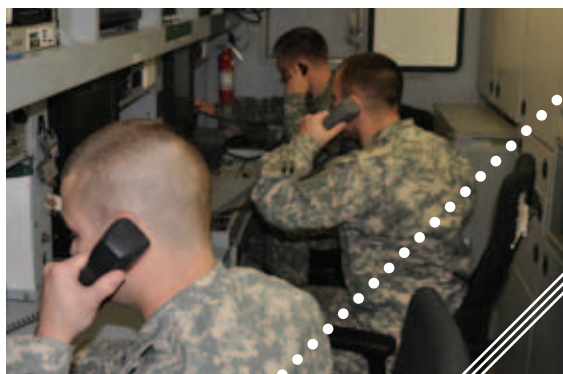
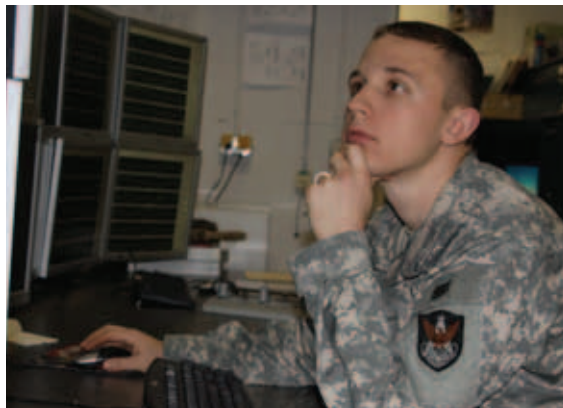
Now serving as the Senior Enlisted Leader, International Security Assistance Force/United States Forces-Afghanistan

I don't think USASMDC/ARSTRAT is getting out and beating their chest about all the things they do on the battlefield. They just do it. They've been doing a great job bringing equipment, technology, electronic warfare, and other things into the theater that help us find improvised explosive devices before they go off and hurt our Soldiers, since IEDs are the biggest threat and the biggest casualty-producing weapon on the battlefield. USASMDC/ARSTRAT has been focused on how to defeat the IED network for many years. And we are not all the way there yet, but we are a lot further ahead than we were in 2003 and 2004.

Every year there is some type of capability being built, some type of new weapon system being found by USASMDC/ARSTRAT to help Warfighters on the battlefield to help those guys get places safely before they walk over or step on or run over an IED. And they make sure they get to the people who need to have it on the battlefield.

It's just amazing now how we can look at our objectives by the imagery technology from Space and Missile Defense satellites, look at our targets before we get out and hit them. We know exactly where we're going; we see the enemy first. That comes from the communications and computer satellite systems provided by USASMDC/ARSTRAT. We give service members a huge advantage by this. It's not a total surprise for them when they get to the objective; they've already seen it.

It's just amazing now how we can look at our objectives by the imagery technology from Space and Missile Defense satellites, look at our targets before we get out and hit them.

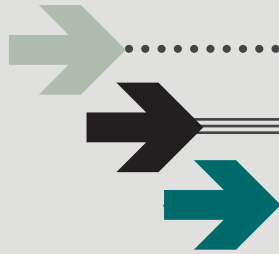


Soldiers working at Wideband Satellite Operations Centers and Joint Tactical Ground Stations are forward deployed worldwide ensuring 24/7 vital mission support to the Warfighter. *Photos by Rachel L. Griffith*



Teams of Soldiers are ready to deploy in-theater on short-notice to support Operation Enduring Freedom.

Photos by Rachel L. Griffith and CPT Brendan Curran.



Pacific

MG Michael T. Harrison Sr.

Commander, U.S. Army
Japan/I Corps
forward deployed

We all benefit from the capability provided by U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. Some of the capability we take for granted, especially in communications and imagery, is simply not possible without Space Soldiers and the USASMDC/ARSTRAT. In my role as commander of U.S. Army Japan and I Corps (Forward), much of the imagery we used during Operation Tomodachi here in Japan was made possible through the professional efforts of USASMDC/ARSTRAT.

I am very familiar with both of the sites in Japan. The sites in Okinawa and Misawa are critical to our military operations throughout the entire Pacific Command area of responsibility. As the commander for the U.S. Army component command in Japan, I closely monitor and have responsibilities pertaining to all activities involving U.S. Army Soldiers and their Families throughout all of Japan.

Our well-trained Army long ago developed a highly skilled and technically proficient force with the best noncommissioned officer corps in the world. To maintain this professionalism and proficiency, Space Soldiers are particularly important to not only the U.S. Army but also to the U.S. armed forces and our allies as well. These Soldiers represent one of our more important low-density military occupational specialties, so it becomes vitally important that we continue to focus our best efforts on their professional training, education, and development. This includes selecting the highest performers who have demonstrated the potential for increased levels of



responsibility to serve as our noncommissioned officers. The responsibilities, competence, and resiliency required of Space Soldiers cannot be overstated; the Army and the Nation need them now more than ever given the potential threats we face.

Lt. Col. Tony Jarry, USAF

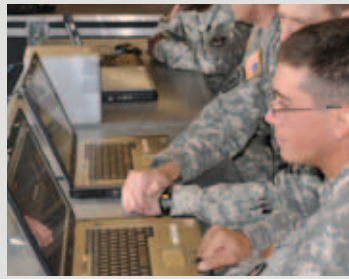
Command Post Chief,
Misawa Air Base, Japan

JTAGS Japan is a close-knit team of highly professional Soldiers who represent the U.S. Army very well. I'm proud to serve with them here at Misawa Air Base. They provide an active Missile Defense system to Misawa Air Base and the surrounding community. This capability affords the 35th Fighter Wing and surrounding area a 24/7 defensive posture. Operationally, the early warning missile system allows the wing to prepare to deploy and fight in the Pacific Air Forces area of responsibility safely by providing us an early missile warning capability.

As we move forward with less funding and a smaller military force, we're going to increasingly rely on technology to help us fight and win wars. This means Soldiers are going to have to understand the systems they work with more intimately as well as know how to use them in both conventional and unconventional ways. It's not enough to have smart technology. We've got to have smarter, more technically educated Soldiers that can exploit the technology they're using.

Space and Missile Defense have been and will always be a large part of our nation's defensive posture. A good offense is strengthened through a good defense. As the long arm of the military reaches farther out, Space and Missile Defense is going to play a larger role in our nation's capability to defend, fight, and win wars.





United States

CSM James N. Ross

Command Sergeant Major, 32nd Army Air and Missile Defense Command, Fort Bliss, Texas

Formerly Command Sergeant Major, 1st Space Brigade

I think that the majority of the Soldiers in the Army, regardless of their career fields, understand the importance of Space and its capabilities. The average Soldiers rely on GPS and satellite communications as a basic part of their duties. At the same time, I know that most Soldiers do not understand the unique mission sets provided by USASMDC/ARSTRAT, for instance, Space control, missile warning, intelligence, surveillance, and reconnaissance, special missions, and satellite payload control. This has been a challenge for USASMDC/ARSTRAT, because it is difficult to educate the force due to the classification level of the operational missions.

The command is a great place to develop more technologically sound Soldiers. The Space career field is leading the Army in development of weapon systems, communication platforms, sensors, and command and control architecture. USASMDC/ARSTRAT focuses a lot on the strategic level of warfare, and most Soldiers do not operate at that level in conventional Army units. Soldiers in USASMDC/ARSTRAT learn to operate in teams, and most enlisted Soldiers will have responsibilities far greater than their current pay grade. Most Soldiers who serve a tour there will leave the command more competent, confident, and educated, which translates into future success. Their experience will benefit any unit in the Army.

I think the Space Professionals and Space Cadre of USASMDC/ARSTRAT are the critical link in educating the force. Their performance in support of theater and regional areas of operations is the best way to show their value. The Space Support Elements and Army Space Support Teams are critical to the reputation and legacy of Space operations because they are working daily with the maneuver forces at the corps and division levels.



USASMDC/ARSTRAT focuses a lot on the strategic level of warfare, and most Soldiers do not operate at that level in conventional Army units. Soldiers learn to operate in teams, and most enlisted Soldiers will have responsibilities far greater than their current pay grade.



- Space Operations
- Missile Defense Operations
- Satellite Communications
- Headquarters, Future Warfare Center, Technical Center and Army Astronauts



SSE

provides Space support in garrison to their respective headquarters and subordinate units

RSSC

Provides a single point of contact for the units they support, planning usage for satellite communications resources.

WSOC

controls the communications payload and communications transmissions of the DSCS and WGS constellations

CIT

provides unclassified commercial imagery to U.S. and coalition forces, as well as other government agencies.



A Global Command

A Wahiawa, HI

- D Company, 53rd Signal Battalion
- Regional SATCOM Support Center

B Fort Greely, AK

- 49th Missile Defense Battalion

C Vandenberg Air Force Base, CA

- 100th Missile Defense Brigade

D Colorado Springs, CO

- USASMDC/ARSTRAT Headquarters
- Future Warfare Center
- 1st Space Brigade
- 100th Missile Defense Brigade (GMD)
- Global SATCOM

E Houston, TX

- Army Astronaut Detachment

F Fort Detrick, MD

- A & B Company, 53rd Signal Battalion

G MacDill, FL

- Regional SATCOM Support Center

H Huntsville, AL

- USASMDC/ARSTRAT Headquarters
- Technical Center
- Future Warfare Center
- TCM - Space & Global Missile Defense

I Landstuhl, Germany

- C Company, 53rd Signal Battalion

J Stuttgart, Germany

- JTAGS Joint Tactical Ground Station
- RSSC Regional SATCOM Support Center

K Osan, Korea

- JTAGS Joint Tactical Ground Station

L Okinawa, Japan

- E Company, 53rd Signal Battalion

M Misawa, Japan

- JTAGS Joint Tactical Ground Station
- AN/TPY-2 Forward Based Mode

N Doha, Qatar

- JTAGS Joint Tactical Ground Station
- ARSST Army Space Support Team
- CIT Commercial Imagery Team
- SSE Space Support Element

O Kurecik, Turkey

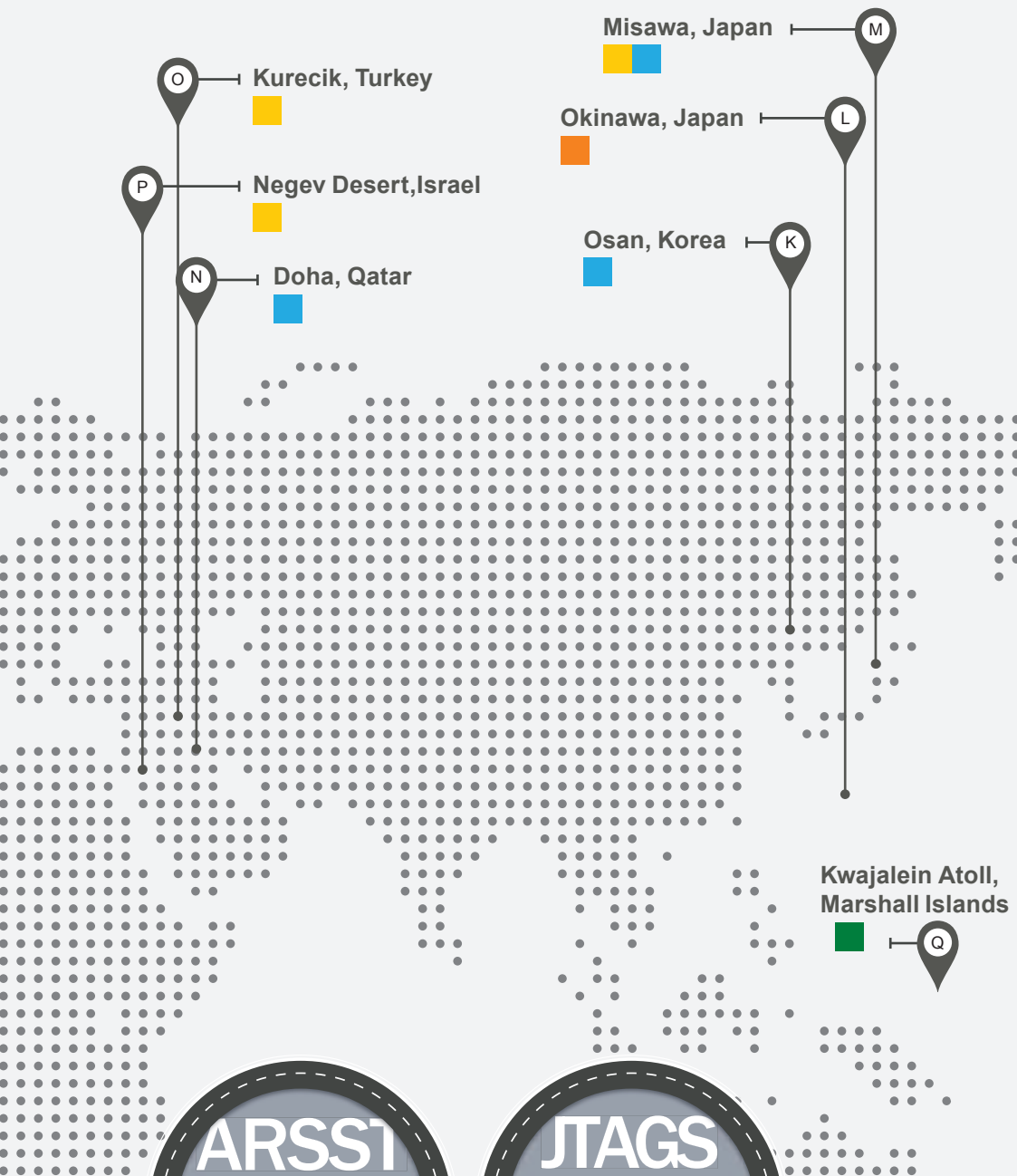
- AN/TPY-2 Forward Based Mode

P Negev Desert, Israel

- AN/TPY-2 Forward Based Mode

Q Kwajalein Atoll, Marshall Islands

- Reagan Test Site



ARSST

provides broadband communications, making possible in-theater Space analysis, Space support products, & Space planning

JTAGS

provides in-theater early missile warning support to combatant commanders around the world.

A S S U R E D Tactical A C C E S S to Space

The following article was excerpted from a white paper, *Assured Tactical Access to Space*, a concept document produced by Dave Carrithers, Frank Cox, and George Luker of the Concepts and War Games Division of the U.S. Army Space and Missile Defense Battle Lab. The complete white paper can be found on the Army Space Journal Website.

The Military Problem

When considering future paths for the development and deployment of Space capabilities to support land combat operations, the required capabilities found in the Army Capstone Concept (ACC) and Army Operating Concept (AOC) serve as baselines for Army Space requirements, requirements that can be articulated to the joint Space communities responsible for the actual development and servicing of these assets. When considering the central ideas of these concepts we must ask the following questions. How do we assure access to the most important Space force enhancement capabilities for our tactical forces? How do we diversify our capability portfolio or employment procedures to mitigate an increasingly contested environment? What technologies do we pursue? How do we better leverage joint, coalition, and commercial partner capabilities? How do we develop and train our leaders to exploit better the advantages of our Space capabilities? The Army must answer these questions to make certain it has dependable access to Space-enabled capabilities.

Assured Tactical Access to Space

Meeting the challenges presented in the ACC and AOC—especially the characteristics of “operational adaptability” and “operating decentralized”—will place greater demands on our leaders and command-and-control mechanisms. It will be necessary to develop capabilities that deliver Space down to the lowest tactical level, the “tactical edge.” Operating decentralized will require



competent and confident leaders supported by reliable capabilities that will enable communications, situational awareness, and superior decision-making. The Army modularity construct itself requires that units are dislocated geographically from higher headquarters; smaller Army units operate increasingly detached from, and independent of, more fixed and stable higher-level command-and-control (C2) headquarters. This increased responsibility has stressed not only the capabilities and skill sets of our younger leaders but has also outpaced the technical capabilities to keep these organizations connected. Thus, Army modularity, and the AOC, demand that tactical units have Space capabilities¹—those capabilities once seen only at division-and-above will need to be accessed down to the lowest echelons. Space-based communications and Global Positioning System (GPS) are “must haves” that allow communications at long distances on the move and deliver accurate positioning, navigation, and timing information. They provide the capabilities and capacities for the Army to increase the coverage of operating areas, to have precise knowledge of troop locations, and to deliver fires more accurately.

Along with satellite communications (SATCOM) and GPS, Army Warfighters also depend on other Space-force enhancement assets, namely those on-orbit intelligence-and-warning resources that provide missile warning and overall battlespace characterization. A number of Space systems offer land Warfighters valuable battlespace situational awareness and missile warning. In particular, the Overhead Persistent Infrared program offers both missile warning and intelligence, real-time critical dependencies for theater commanders’ decision-making and the execution of tactical ground missions. If the Army of the future is to fight effectively when decentralized—and at the same time maintain operational adaptability—assured tactical access to Space becomes imperative.² Simply put, this means Space must be delivered when and where Warfighters need it for mission accomplishment.

Supporting Ideas

Four supporting ideas contribute to the development and delivery of assured tactical access to Space capabilities. Although Space is often considered an esoteric and technical domain, the ideas that follow spread across the whole doctrine, organizations, training, materiel, leadership and education, personnel, and facilities-solutions construct and oblige the Army to take a more holistic approach toward them, an approach that goes beyond simply developing and procuring more user devices.

These ideas are:

- Diversifying architectures using a multidomain approach
- Influencing partners’ capabilities and programs
- Gaining and maintaining advantages to tactical Space access
- Building versatile and adaptable Army Space organizations
- Diversifying Architectures Using a Multi-Domain Approach

It is no longer the case that the Army operates in an assured and non-contested Space environment. In the early stages of Operation Iraqi Freedom, for instance, the Iraqis attempted to jam GPS signals with jammers readily available for purchase online. Thus, the Army must be prepared to fight in denied, degraded, and disrupted Space operational environments.³ To prepare to fight Space capabilities in a contested Space environment, it is incumbent on the Army to follow a multidomain approach by advocating for and leveraging capabilities in the terrestrial, aerial, high-altitude, and Space layers. This approach would diversify networks; it would construct a NetOps environment that builds secure and reinforcing information architectures; and it would create a redundant, reliable system of intelligence, surveillance, and reconnaissance (ISR) platforms and payloads. A multidomain approach provides defense-in-depth, making it both

~ 80%
SATCOM
PROVIDED VIA
COMMERCIAL
SYSTEMS

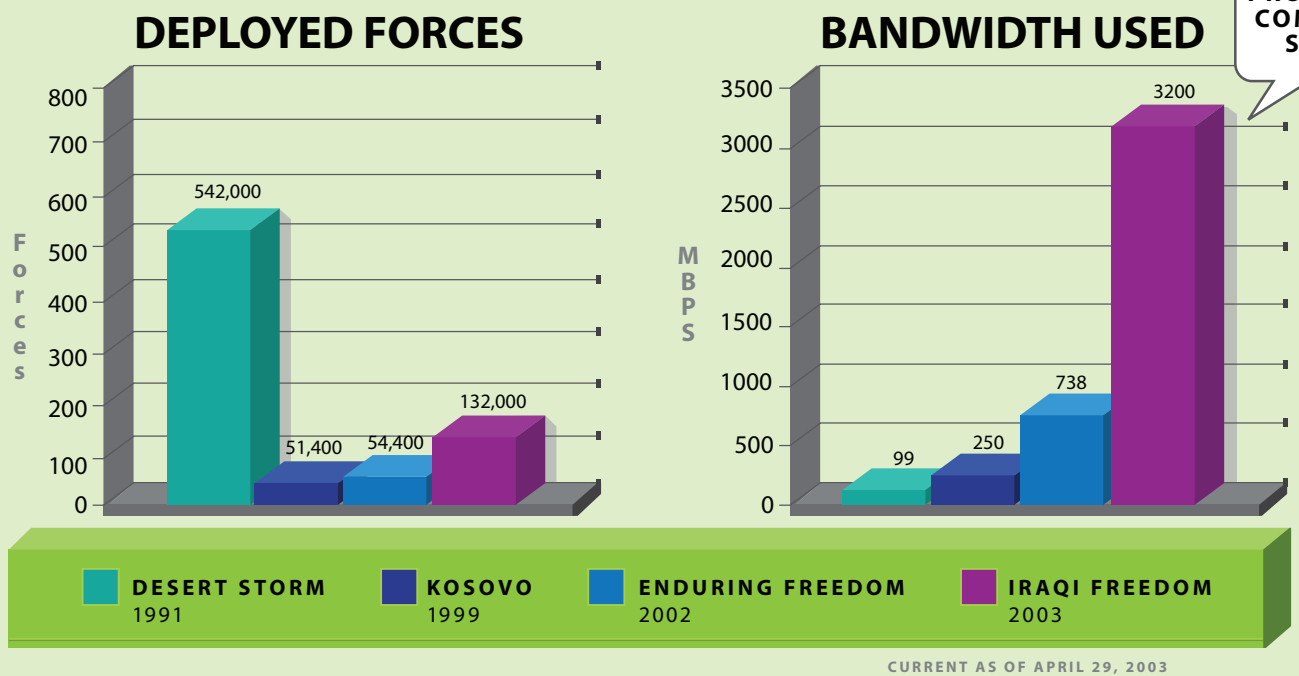


FIGURE 1
Increase in
Bandwidth
Requirements
since Operation
Desert Storm

When is enough, enough?
The United States Army's appetite for wideband SATCOM has grown exponentially. Army requirements for SATCOM in the early days of Operation Iraqi Freedom quadrupled in comparison to Operation Desert Storm despite a significantly lower number of deployed command echelons and force levels. With further emphasis placed on Network Centric Operations, this requirement seems almost certain to maintain a consistent growth path.

difficult and resource-intensive to attack military communications and ISR delivery systems. A multi-domain approach not only provides resiliency it also grows bandwidth capacity, increasing the likelihood of timely tactical access. Finally, operating over widely dispersed operating areas, and in the most austere environments, will challenge Army Warfighters to establish and maintain communications links—a multi-domain approach will be required for wide-area and austere operations in order to establish networks swiftly and securely.

Influencing Partners' Capabilities and Programs

When considering the Army's growing dependencies on Space, it is important to realize that the Army is fully dependent on the joint community and commercial markets. The Army does not primarily build, launch, and operate any Space systems. In past cases, the Army was unable to voice capability requirements or prioritize operational requirements. The Army's approach was to focus on building terminals that leveraged pre-existing on-orbit capabilities. The Army should avoid this approach in the future. In the future, the Army must use the Army Concept Framework as an opportunity

to flex its institutional muscles, to articulate and justify its operational requirements to the joint Space community—the goal being to ensure strategic on-orbit assets will deliver tactical effects for the Army when and where they are needed.⁴

The emerging joint Operationally Responsive Space (ORS) program offers an opportunity for the Army to influence the development of rapid-response Space solutions intended to solve operational problems or fill the gaps in under-served regions. If executed as currently conceived, combatant command commanders would be able to leverage ORS satellites for land-component operations under their areas of responsibility for ISR and satellite communications.

In the case of SATCOM, the joint Space communities' capacity has already been outstripped by operational demands. To meet the growing appetite for bandwidth, the joint warfighting community has turned to the commercial market to meet over 80 percent of its wideband SATCOM needs.⁵ Programs such as the Transformational Communications Satellite were intended to reverse this trend. However, competing funding demands and schedule delays led to the cancellation of this program with no suitable replacement identified (Figure 1).

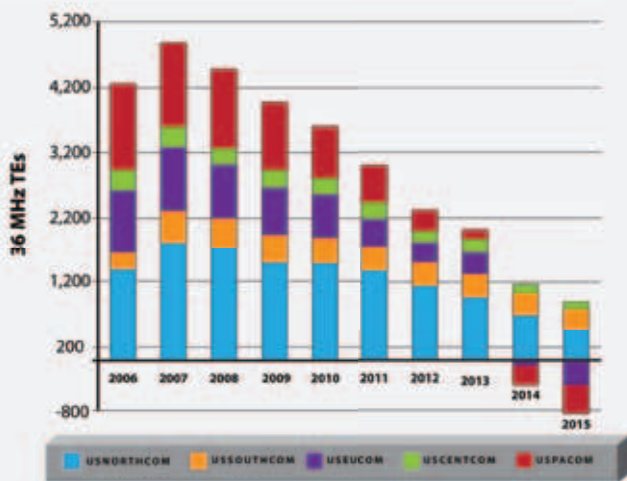


FIGURE 2
Commercial SATCOM Capacity May Not Meet Demand in Key Regions Because of Tightening Spot Lease Markets

The growing dependency on the commercial sector is complicated by the fact that the Department of Defense (DOD) does not procure commercial SATCOM in a long-term manner and depends on the commercial spot market to meet unforeseen operational demands. Although this approach has worked in the past, long-term market surveys indicate that by 2017 there will be little or no useful available bandwidth available in the spot market. Moreover, several regions will see a decrease in overall available bandwidth by 2014-15 (Figure 2).⁶

The Army must work with its DOD partners to develop a strategy that recognizes the value of commercial Space-based assets and that recommends procurement of contracts that offer vital long-term global access. As the Army deliberately brings new commercial capabilities to bear, they must set their sights on enduring programs and contract for long-term commercial Space access. As part of that effort the Army would gain greater capability flexibility by influencing requirements that commit to acquiring customized hosted payloads that fill the gaps in critical communications and multi-intelligence services. At the same time, as the Army works with the joint community on defining and establishing system requirements, the Army must also overcome current policy hurdles relating to security and information assurance so that greater access can be offered to our allies and, as necessary, with other non-traditional coalition partners. Furthermore, as the Army builds partnership capacity, it must become adept at, and more willing to, leveraging coalition partner capabilities, going well beyond established data-sharing relationships. As a growing number of nations develop Space-based technologies, the Army must consider how to integrate and leverage these capabilities so they can be brought into the fight.

Gaining and Maintaining Advantages to Tactical Space Access

As discussed earlier, assured access will require more than a different materiel acquisition process for Space systems. Assured tactical access to Space will require training in the proper

employment of these capabilities. As was noted during the recent Unified Quest 2010 Campaign of Learning, our forces deploying into the Iraqi and Afghan theaters are not training with Space capabilities in mind nor are they training for the eventuality that Space access will be degraded during critical phases of the fight. We have already mentioned the growing number of countries that are pursuing, if not already possessing, capabilities to counter our advantages gained from Space access. Although these adversaries may pose the greatest risk, they do not represent the most prevalent risk—the threats from our own forces. Recent experience in Operation Iraqi Freedom has shown that most Space-system degradation is a result of self-inflicted electromagnetic interference, not hostile action. Much of the friendly interference can be attributed to a lack of proper training and non-existent tactics, techniques, and procedures (TTPs) to guide employment of Space, aerial, and terrestrial radio frequency receivers and transmitters operating in-theater. In a word, inefficient frequency and spectrum management makes information access problematic.

Today's Army strives to train the way it plans to fight; the Army of the future must do the same. This means the future force needs to train in environments that allow leaders and units all levels to build confidence while fighting through adversaries' attempts to degrade Space capabilities. This training must be grounded in validated TTPs that provide guidance in the proper employment of Space systems in conjunction with other radio frequency emitters on the battlefield but also provide a basis for rapid mitigation and restoral actions against hostile actions intended to disrupt friendly Space capabilities. Based on lessons learned in recent operations we must assure these TTPs can be adapted to agile adversaries who have proven themselves readily adjustable to our protection methods or countermeasures.

Because we can expect a contested electromagnetic environment during future conflicts, Army forces will require an ability to have situational awareness over the entire Space-supported network architecture. Continuous monitoring of communications architectures and an acute awareness of its risks and vulnerabilities will become key responsibilities of Army Space operations officers and mission partners (signal and intelligence officers, for instance) during combat operations. Our Space forces must be able to discern quickly hostile action from self-inflicted electromagnetic interference so that proper remedial actions can be taken and, if necessary, apply countermeasures to isolate and eliminate threats.

Because we will be operating in a more contested and congested Space environment, securing tactical access must include more than protecting Army systems. The Army's tactical advantage must also be sustained by achieving sufficient Space Situational Awareness (SSA); only by having an adequate level of SSA will the Army be able to deny those Space control capabilities—capabilities such as jamming and spoof-

the Army will require Space forces that are trained in planning, operating, and delivering tactically focused Space support.

ing—that future adversaries will likely employ. With ample SSA, Army forces of the future will also have the ability to integrate capabilities to disrupt future adversaries’ command, control, communications, computer, and intelligence capabilities.

Since commercial Space assets and services are becoming so prevalent, it is very likely that future adversaries will be operating on the satellites the United States uses or they will lease other satellites vital to our own or coalition interests. Therefore, the Army must have the capability to employ precise measures to deny access to adversary-based platforms. As multiple countries pursue Space-based positioning, navigation, and timing (PNT) capabilities, Army forces must likewise adopt the means to deny those Space force enhancements to our enemies.

Building Versatile and Adaptable Army Space Organizations


Assured tactical access to Space will depend in large measure on the abilities of trained Army Space operators and units skilled in leveraging and integrating Space capabilities in support of the tactical fight. Future operations will place great demand on the abilities of all Army organizations to accomplish full spectrum operations and to adapt to rapid transitions from one operational phase to another. The Army’s Space forces, integral to planning and execution of full spectrum operations, must likewise adapt to phased transitions, whether they are organic Space personnel or Space teams attached to various Army echelons.

Tactical Space planning must begin early, early enough to identify the initial operational requirements and then integrate and synchronize the required capabilities into the fight. Because Space capabilities cut across domains and warfighting functions, Space officers must be adept at assessing operational architectures for vulnerabilities and identifying approaches to mitigate the associated risks. Space officers at the tactical level will be in the vanguard by leading efforts to mitigate the effects of a denied, degraded, and disrupted Space operating environment. Space officers must ensure commanders understand the risks to operations when C2, intelligence-gathering, and PNT functions have been degraded and assist them in developing training programs and TTPs to overcome degraded operations. Since tactical users will

often first notice the effects of degradation, Space teams must be trained and equipped at the tactical level to monitor and detect attacks within the spectrum, the networks, and relevant Space architectures. Along with monitoring and responding to degraded capabilities, Army Space operations officers, furthermore, must also become adept at planning and performing missions related to Special Technical Operations, Alternative Compensatory Control Measures, and the full complement of Space control capabilities afforded to ground Warfighters. In so doing, they will gain a fuller understanding of defensive and offensive Space operations and will be better able to adapt.

Because Space is an inherently technical domain and a key aspect of the information environment, the Army will require Space forces that are trained in planning, operating, and delivering tactically focused Space support. As we have seen demonstrated over the past two decades, the rapid pace of technology advancement and fielding presents challenges on how to best leverage the latest relevant technologies to ensure the Army maintains the tactical advantage. With new capabilities on the horizon such as Operationally Responsive Space assets and high altitude platforms, needs will arise to control platforms, manage payloads, and perform post-mission analyses. The current structure of the Army’s Space brigade should evolve from a “Space-planning augmentation” capability into Army Space brigade teams bringing primary capabilities to future ORS and high altitude operating concepts and architectures. Furthermore, the Space brigade of the future should continue to enhance current SSA planning efforts at Army tactical operations centers, especially those activities that help integrate Space and cyber operations into headquarters’ fires-and-effects cells. To conduct activities such as these, Army Space forces will require having a robust operational suite that adds ground-based offensive technologies to deny the advantages of Space to adversaries.

The generating force is the foundation of adaptable Space forces. The Army must continue to advance its Space training, incorporating the latest operational trends and capabilities into its education and training programs. Space training must be broadened beyond the current focus on designated Space operations officers; it must include other Space professionals and enablers found in the growing civilian Space cadre.



These civilian Space professionals must become fully vested in the Army profession of arms by adopting a warrior ethos. This ethos will not only help ready Army Space forces for combat but will complement the uniformed Space force by being willing and able to perform any and all Space measures short of down-range presence.

Using Space-enabled devices and tools have become common tasks. Instructors and trainers must work to integrate those common tasks into soldier and leader training venues. Theater-tailored training must be developed and integrated into pre-deployment programs to support deploying forces.

To leverage fully what Space can offer Army Warfighters, the Army's technical community must take fundamentally different approaches to conducting research and development and finding materiel solutions. Primary efforts should no longer focus strictly on developing programs of record and formulating risk-reduction activities. The Army's Space materiel developers must shift their attention toward making Space capabilities more tactically responsive, focusing on capabilities that meet the most urgent mission needs. Instead of pursuing the most exquisite capabilities that require lengthy and costly development cycles, greater importance should be placed on integrating commercial Space capabilities to ensure more rapid development of resources to meet the more pressing needs of the tactical fight. Finally, the Army must consider alternative acquisition strategies outside of the ponderous Joint Capabilities Integration and Development System process for Space acquisition; an effort such as the highly successful Army Tactical Exploitation of National Capabilities program, for instance, could be expanded beyond its current emphasis on intelligence services.

Space in Support of Army and Joint Operations

As part of a force that includes joint, interagency, and multinational partners, Army forces exercise mission command⁷ to conduct combined-arms maneuver⁸ and wide-area security⁹ to defeat enemies and stabilize environments. Space capabilities support all three battlefield functions—mission command, combined-arms maneuver, and wide-area security—and without access to Space, Army forces performing these functions would not operate as effectively, efficiently, and safely. Without adequate Space PNT support, combined arms maneuver (which includes fires) would become slow, cumbersome, unsynchronized, and much less accurate. Without sufficient coverage by on-orbit ISR collection assets, wide-area security would become less-intelligible guesswork, especially when operating across far-reaching areas of responsibility. Without access to SATCOM, mission command, the function that provides command and control and synchronization of forces, would become tremendously difficult and would bog down Army forces tasked with either combined-arms maneuver or wide-area security missions.

To leverage fully what Space can offer Army Warfighters, the Army's technical community must take fundamentally different approaches to conducting research and development ...

As the Army Operating Concept frequently suggests, then, Space-enabled effects are indispensable for supporting joint and Army missions.

For Army forces to prevail in a wide range of contingencies—including defeating adaptive enemies in major combat operations, responding with civil agencies to attacks or natural disasters, supporting and stabilizing fragile states facing internal or external threats, and preventing human suffering—requires assured tactical access to Space capabilities. Just as Army forces must be operationally adaptable and able to rapidly transition from one mission to another, Space forces and capabilities must be able to adapt rapidly to a variety of operations including full-spectrum operations, humanitarian relief missions, and missions within the homeland. The AOC establishes eight Army operations that must be integrated throughout all of the Army's mission areas.¹⁰ All eight operational areas require Space capabilities for effective operations and mission success: Full-Spectrum Operations, Homeland Defense and Civil Support, Sustained Engagement, Entry Operations, Preventing Proliferation and Countering Weapons of Mass Destruction, Cyberspace Operations, Foreign Humanitarian Assistance, and Space Operations. A brief discussion of each area and its Space requirements follow. The section below on Army Space Operations highlights more fully how Army Space operations influence the joint fight.

Full-Spectrum Operations

Army forces down to the company level conduct offensive, defensive, stability, and civil support operations simultaneously to defeat enemies and secure populations. This range of contingencies requires integrated Space capabilities that can rapidly transition from one operation to another without the loss of access or capability. This requirement for rapid transitions will require Space architectures (Space, link, and ground elements) responsive to dynamic environments. Each type of operation will require access to a full range but different mix of Space force enhancement capabilities delivered by a combination of systems (a multi-layered approach). Army forces are likely to face an adaptable enemy with similar technical capabilities; therefore, a full range of Space control capabilities must be integrated into land combat operations. A crucial part of that

integration is an understanding that the Army must assure that Space control activities—separate and distinct from cyber operations—are synchronized effectively within the cyber/electromagnetic contest. Coordination between Space and cyber operations is discussed more fully below.

Homeland Defense and Civil Support

The Army supports the security of the homeland through homeland defense and civil support operations. Homeland Defense operations, much like full-spectrum operations, require ample access to Space force enhancement capabilities. Because much of the military Space architecture is dedicated to geographical areas overseas, Army operations in the homeland will require greater access to commercial Space capabilities. Space capabilities may be employed to support response-and-recovery efforts by leveraging Space sensors for surveillance and post-event assessments; Space payloads may also be used for communications to restore civil authority and repair critical C2 infrastructures. Both operations will require Space forces capable of interacting with civil authorities and providing Space products that have few security-classification barriers.

Sustained Engagement

The Army conducts engagement activities to increase partner security and capacity. Space operations are conducted to support Army forces employed in these operations through a tailored mix of Space force enhancements. Space operations can also be used in direct support of host-nation partners in support of internal security needs and command and control mechanisms.

Entry Operations

Always operating as part of the joint force, the Army frequently conducts opposed or unopposed entry operations to accomplish missions in support of the joint commander's campaign objectives. Prior to beginning entry operations Space capabilities can provide geo-intelligence and electronic intelligence to support intelligence preparation of the battlefield activities. When entry operations begin, Space-based communications are employed to support enroute mission planning and command and control networks. In most cases, joint and Army forces' primary communications backbones will be Space-based until initial lodgment is secured. Overhead Persistent Infrared systems will provide timely intelligence, battlefield awareness, and missile warning during all phases of entry operations. Once initial entry is established, Space capabilities will be reinforced by the rapid establishment of a multidomain network to facilitate a timely buildup of the Army tactical network. To support forced entry operations, Space operations must be considered for interdiction and disruption of adversary C2 systems.

Preventing Proliferation and Countering Weapons of Mass Destruction (WMD)

The proliferation of WMD continues to undermine global security, further complicating efforts to sustain peace and prevent arms races. Space operations support counter-WMD with multi-intelligence activities and by monitoring high-risk areas for potential WMD or chemical, biological, radiological, nuclear, and explosive events. Space capabilities will provide event detection and early warning to counter the employment of WMD and, if necessary, help mitigate mass effects.

Cyberspace Operations

Cyberspace operations include computer network operations and activities to operate and defend the global information grid. Space operations is a key element serving as primary means of extending the global information grid to the tactical fight as well as providing the precise timing needed to synchronize digital networks. Defensive Space Control operations will ensure that Army forces prevail in the cyber/electromagnetic contest by providing an awareness of critical interdependent Space and communication nodes. Offensive Space Control operations will also be conducted alongside other cyber/electromagnetic activities to deny technical advantages to established and potential adversaries.

Foreign Humanitarian Assistance

Foreign humanitarian assistance operations assist governments and security organizations in easing human suffering caused by natural and manmade disasters such as hurricanes, tsunamis, earthquakes, mass atrocities, or terrorist attacks. When Army forces are called upon to respond to crises outside the U.S. homeland, Space capabilities will be employed to respond to disaster events as well as providing other Space force enhancements to enable mission command of Army forces deployed to support these operations.

Army Space Operations in Support of the Joint Fight

Space operations by their nature are joint enterprises. All service components use strategic Space assets to create desired tactical advantages, and the Army is no different, providing joint theater support in a number of ways. Army Forces support the Joint Force commander by employing Army-unique Space-related capabilities to meet his critical information requirements. Unquestionably, Army Space uniforms already bring land Warfighter expertise to planning, allocation, and the employment of joint and national Space capabilities. To ensure the land-combat vision contributes to the joint fight, the Army assigns Space operations officers to combatant joint staffs for key operational planning functions; the Army also



provides Army Space teams to augment joint and operational elements during combat operations.

Army forces also execute several Space-support activities for the joint Warfighter by planning and managing communications satellite payloads for DOD. Army forces like-

Land Warfighters' DEPENDENCIES on Space will only increase as time goes on ...

wise conduct a full range of ground-based Space superiority activities using both non-kinetic and kinetic means to support U.S. Strategic Command and Joint Functional Component Command—Space's critical operational demands. Leveraging on-orbit strategic assets—Defense Support Program and Space-Based Infrared System¹¹ satellites—the Army's Joint Tactical Ground Station system provides continuous ballistic missile warning to combatant commanders. Finally, the Army's generating force—through means of its technical base—provides rapid Space technology solutions to respond quickly to theater-specific shortfalls. In the future, Army Space teams may actually be responsible for payload control on high altitude and other aeral platforms to help prosecute the joint fight.

Conclusion

Future tactical land Warfighters must have assured access to Space. Land Warfighters' dependencies on Space will only increase as time goes on and requirements for Space access will expand at rates even greater than before. As Army leadership begins to recognize the concept of assured tactical access to Space, the Army will be compelled to take a more engaged approach to ensuring

Warfighters have the best capabilities delivered at the right place, at the right time.

The Space domain arrays itself across all warfighting functions and all phases of operations. Operational adaptability requires access to Space in all environments and access to Space becomes even more critical when operating under austere conditions. Diversifying networks by employing all domains—terrestrial, aerial, high altitude, and Space—as a unified architecture makes good sense. The Army must also expand joint, coalition, and other partnerships to reassure ready access to Space-enabled capabilities. By developing versatile, adaptable Space organizations, the Army will remain ready to deploy all types of mission sets and across all warfighting functions.

The Army must be prepared to fight using Space, but must also be prepared to fight under degraded Space conditions. To fight on the tactical edge, Army units must gain and maintain situational awareness of the electromagnetic spectrum, must understand when electromagnetic interference comes from friendly or enemy sources, and must train to respond and operate under both sets of conditions.

The intent of this essay was to outline a number of present and future concepts based on observations made during recent wargame events and to address future Army warfighting operations pertinent to Space; also proposed is an enabling concept, assured tactical access to Space, a concept the Army must embrace to ensure mission success of future land combat operations. The discussion also highlighted a number of those vital connections between Army operations and Space that were not treated in the Army Capstone Concept and the Army Operating Concept. It is the intent that the concepts discussed here will be readily accepted by key Army stakeholders to assure the success of forces operating at all echelons, and especially those ground forces operating on the tactical edge.

Footnotes

¹ U.S. Army Training and Doctrine Command, Army Operating Concept, TRADOC Pamphlet 525-3-1 (Fort Monroe, Va.: 2010), para. 3-5d, p. 18. "... organizations at the lowest tactical level must have required enablers to integrate joint capabilities in mission planning and execution."

² More fully, this essay defines "assured tactical access to Space" as guaranteed access to Space capabilities that meets land Warfighter mission requirements and timelines (during all phases of full-spectrum operations).

³ "Preparing to Fight through Degraded Space Operations," memorandum, Commander, U.S. Army Training and Doctrine Command to Chief of Staff of the Army, 27 July 2010, encl. 6.

⁴ Space and Missile Defense Battle Lab, Frontiers Division, Army Space Power 2035: A Look Forward (Colorado Springs, Colo.: U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, 2007), p. 1. "Space capabilities once thought of as strategic in nature will now be applied onto the battlefield for tactical effects."

⁵ Space and Missile Defense Future Warfare Center, 2009 Satellite Architecture (Huntsville, Ala.: U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, 2009).

⁶ Daniel Gonzales, Isaac R. Porche III, Shara Williams, and Bradley Wilson, Managing Growing Army Demands for Bandwidth: Predicting Growth Trends and Developing Solutions for Future Army Forces (Santa Monica, Calif.: RAND, March 2009), pp. 59-64.

⁷ U.S. Army Training and Doctrine Command, para. 3-4 a (1), p. 12. Mission Command is defined as "the exercise of authority and direction by the commander ... to integrate the warfighting functions using the operations process and mission orders to accomplish successful full-spectrum operations."

⁸ *Ibid.*, para. 3-4 c (1), p. 13. Combined Arms Maneuver is defined as "the application of the elements of combat power in a complementary and reinforcing manner to achieve physical, temporal, or psychologic advantages over the enemy, preserve freedom of action, and exploit success."

⁹ *Ibid.*, para. 3-4 d (1), p. 14. Wide-Area Security is defined as "the application of the elements of combat power in coordination with other military and civilian capabilities to deny the enemy positions of advantage; protect forces, populations, infrastructures, and activities; and consolidate tactical and operational gains to set conditions for achieving strategic and policy goals."

¹⁰ *Ibid.*, secs. 5-1 to 5-9, pp. 26-34.

¹¹ U.S. Air Force, "Defense Support Program Satellites," fact sheet, Sept. 15, 2010, <http://www.af.mil/information/factsheets/factsheet.asp?id=96>, and "Space-Based Infra-Red System," fact sheet, Nov. 15, 2010, <http://www.af.mil/information/factsheets/factsheet.asp?id=17514>

INFORMATION SHARING IN COALITION SPACE OPERATIONS

BY CPT BRAD HAMLETT

The U.S. Army, Air Force, and NATO have formally identified coalition Space operations as an area of concern for future multilateral engagements. All three organizations have discussed draft policies, established committees, and published reports outlining the way forward for coalition Space operations. Given the social, cultural, and religious complexity and staggering costs of modern warfare, unilateral actions will likely make up the minority of military operations the United States conducts in the next few generations. The United States continues to field the most powerful military in the world and to lead the most powerful and capable coalitions in the history of warfare.

Since Space operations are so tightly integrated into modern warfare and information-driven warfare is vital to achieving military objectives, the United States must ensure that information-sharing policies maximize its coalitions' abilities to employ military capabilities. The United States reserves the right to protect national intelligence assets through information classification, while coalition partners are sometimes frustrated by American unwillingness to share information that could multiply their application of force or reduce casualties in their operations.

As the Department of Defense establishes coalition Space operations centers with Australia, Canada, and Great Britain, the problems with information sharing will become readily apparent unless the department establishes information-sharing policies at the coalition staff level (C-6/J-6) and incorporate commercial off-the-shelf information-sharing technologies into computer software programs that provide Space products and services on classified and unclassified networks. The goal is to promote flexible, interoperable, and secure information sharing while complying with the existing system of information classification.

Perspectives from Doctrine and Allies

Joint Air Power Competence Center

In 2009 the North Atlantic Treaty Organization's Joint Air Power Competence Center published the Space Operations Assessment to make recommendations on integrating Space

into NATO's military operations, based on the organization's experience in Afghanistan. The Space Operations Assessment identifies numerous Space products and services required in coalition operations including positioning, navigation, and timing; intelligence, surveillance, and reconnaissance; satellite communications; weather; and missile warning.¹ While the United States' Space capabilities far exceed most coalition partners, few national security Space products are available at a releasable or unclassified level.² Policies and procedures for sharing U.S. Space products and services with Australia, Canada, and Great Britain or "Five Eyes" members are fragmented at best, and virtually nonexistent at worst in the International Security Assistance Force coalition.³ Even worse, top-secret products and services from as little as ten years ago are now unclassified and commercially available, although at great expense.⁴

The Space Operations Assessment recommends embedding joint coalition Space Support Teams (SSTs) in J-3 (operations) and J-5 (plans) staffs.⁵ Additional coalition SSTs are recommended at the combatant command level (or regional level in future operations structured like the International Security Assistance Force). The Space Operations Assessment additionally recommends that the United States provide education and training opportunities for multinational partners, as those nations establish and build career fields for Space specialties. The United States has the most senior, combat-experienced Space cadre of any nation, so it is America's responsibility to lead the creation of new information-sharing policies to maximize coalition military capabilities.⁶ To date, no defense agency has published a report comprehensively detailing the problems with coalition Space operations, although both the Army and Air Force have working groups currently discussing the issue with information sharing at the center of these discussions.⁷

Royal Air Force in Operation Iraqi Freedom

Royal Air Force Squadron Leader Sophy Gardner identifies information sharing as one of the most difficult challenges for British forces during the opening phases of Operation Iraqi Freedom. Information classified as secret releasable had to be manually transferred from U.S. SIPRNET systems to British

computer systems.⁸ Efficient transfer of the information depended on the personalities and good working relationships of the people involved, often impacting operations.⁹

Aside from information classification, system interoperability was another critical factor impacting information sharing during coalition operations. British and U.S. computer systems were not compatible, and the manually reviewed and transferred information had to be reformatted by British personnel in order to be usable.¹⁰

National Security Space Strategy

On April 9, 2011, the Secretary of Defense ordered the creation of policies to promote coalition Space operations based upon the new National Security Space Strategy (NSSS). The NSSS, jointly written by the Secretary of Defense and the Director of National Intelligence, calls for the development of combined Space doctrine with international partners.¹¹ The NSSS calls for the Department of Defense (DOD) and the intelligence community to work with federal agencies, international partners, and commercial firms to share capabilities, data, services, personnel, operations, and technology.¹² The purpose of this goal is to achieve common objectives, to ensure the United States has access to redundant Space capabilities, and to share costs and risk.¹³ The NSSS also calls on the DOD and the Intelligence Community to write coalition Space doctrine, develop common computer network standards to promote information sharing and coalition Space operations, and endorse the sharing of Space capabilities during conflicts.¹⁴

While the NSSS specifies satellite systems, orbital assignments, and the radiofrequency spectrum as areas of interest for combined Space doctrine, the DOD Near Term Tasks memorandum targets U.S.-led coalition operations for new policies to share Space products and services.¹⁵ Most importantly, the memo directs U.S. Strategic Command to develop near, mid, and far-term plans for a networked coalition Space operations center with Australia, Canada, and Great Britain.¹⁶ The memo also requires that the network be flexible to include additional partners and command authorities.¹⁷ Although not specified, this requirement implies that the computer network should be available to combatant commands during coalition military operations.

Policy and Technology Solutions

Organizations subordinate to the Office of the Secretary of Defense and the Office of the Director of National Intelligence are preparing to publish policies for sharing information in coalition Space operations, in compliance with the new NSSS and the DOD Near Term Tasks memo. These policies will cover both the acquisition of new Space systems and capabilities as well as the sharing of Space products and services. Since these are pending policies, this article will focus on coalition-level policies for use by the C-6/J-6, and propose technological

solutions to implement the policies. Grandiose solutions, such as overthrowing the current system of information classification and replacing it with a new system, are unrealistic, given the institutional knowledge and familiarity with the current system found throughout the federal government. Instead, technological solutions promote flexible, interoperable, and secure information sharing while complying with the existing system of information classification.

The proposed solutions are based on two standard technologies: Extensible Markup Language (XML) and Application Programming Interfaces (APIs). XML standards are developed and promoted by the World Wide Web Consortium, a nonprofit international organization that develops and publishes international protocols and guidelines to ensure the long-term growth of the Internet.¹⁸ XML is a flexible programming language used widely in electronic publishing and data exchange interfaces throughout the Internet. The language is based upon ISO 8879 standards for markup languages.¹⁹ In short, XML is both a commercial-off-the-shelf technology and a flexible, widely available technology for sharing information across the Internet. The DOD already uses XML extensively in many applications on both SIPRNET and JWICS networks.

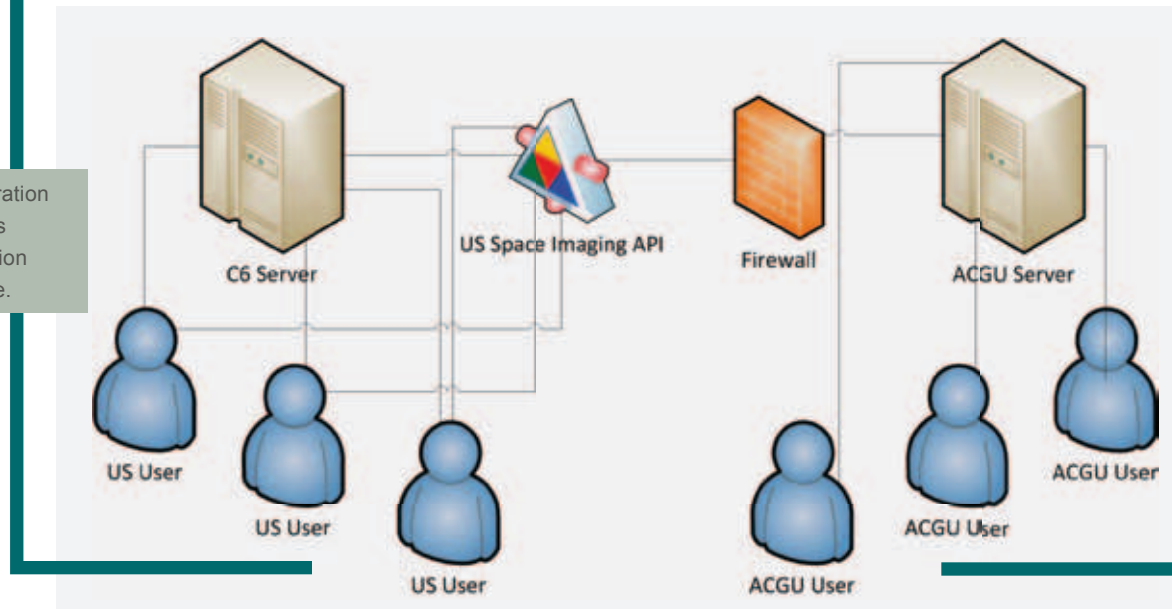
An API is a set of rules within a computer application that permits information sharing.²⁰ APIs allow computer applications to communicate with each other using a common language.²¹ The most common API language is XML, although many variants for XML exist.²² APIs can be created for nearly any type of computer application, including programs, databases, and operating systems. For the U.S. federal government, the most common and widely used standard is the Government Linked Data (GLD) API standard promoted by the GLD Working Group, under the World Wide Web Consortium and chaired by George Thomas from the Department of Health and Human Services.²³

Policy Solutions

Based upon GLD Working Group standards for federal APIs, C-6/J-6 staffs can establish policies for flexible, interoperable, and secure SIPRNET APIs designed for sharing Space products and services with coalition partners, with broader future implications for the development of SIPRNET and JWICS APIs for many programs dealing with many levels of classified information. API policies should establish standards for writing APIs, and standards for computer systems and programs connecting to the APIs.

Coalition partners also should be provided with a policy memorandum precisely defining technology and security standards for them to connect to APIs. These policies should define the minimum hardware requirements for each computer system and the minimum software requirements, including the operating system and installed software necessary to use API data. The policy memo also should define security standards, including permissions for physical connections to the unclassified Internet

Figure 1. Simple illustration of network connections to an imagery Application Programming Interface.



and hardware and software firewalls between computer systems. The memo also should include specific details including the type of cabling allowed for networks such as CAT5 or CAT5e, and labeling standards for the cables so technicians and operators can clearly identify which cables connect with which networks.

In addition to the policy memo provided to coalition partners, an internal C-6/J-6 memo should be developed defining procedures for connecting coalition partners' networks to the U.S. networks. These procedures should define security requirements including software and hardware firewalls between U.S. and coalition networks. Additional policies should be developed to define the goals, standards, and architectures for APIs. The API policies should be designed to promote flexibility, interoperability, and security for U.S. and coalition personnel. The overall goal of these policies is to clearly define the standards coalition partners must meet in order to connect to U.S. networks. In exchange for meeting these requirements, coalition partners can obtain U.S. Space products and services at no cost. If coalition partners choose not to meet U.S. standards, there is no penalty and coalition partners can obtain unclassified Space products and services from commercial providers.

Technology Solutions

Using XML to create APIs for Space products and services allows C-6/J-6 staffs and Space professionals to share information in ways that create additional force multipliers from existing Space capabilities. The goals for Space APIs should be flexibility, interoperability, and security. Flexibility is the ability of the API to generate information that can be read and manipulated by receiving programs in ways defined by the user. Interoperability is the ability of the API to generate information that can be used and read by as many programs as feasibly possible. Feasibility must be defined by the requirements of each program in order to write an interoperable API. Security is the ability of the API to share information while preventing unauthorized use and maintaining information classification standards and safeguards.

Designing APIs

Joshua Bloch, a programmer at Google, argues that APIs should perform a single function very well. In the case of an imagery API, the goal should be to provide classification level, the image, and meta data. From these requirements, the designer should establish a single function that is easy to explain to users in a few words.²⁴ Functionality can always be added to an API, but it can never be removed.²⁵ Coalition users will write their own software to receive data from U.S. APIs, so removing a function will cause coalition users' software to malfunction. Therefore, any API for Space information should be simply written to perform a single function.

The Google Earth API is used extensively to share information and create new capabilities for Warfighters. High-quality imagery and map overlays can be manipulated in a variety of ways to make the presentation more relevant to Warfighters with data points and mission parameters embedded in the map. Classified capabilities present information in even more relevant ways. The Google Earth API is flexible, so many users and programs can access its information and manipulate it. Users can import data files that Google Earth displays on the map. Google Earth also can export data files that users can import into other programs and manipulate as needed. The public version of Google Earth even allows companies to update their location, contact, and business information in real time through the business's Google Places account. The type of programming in the Google Earth API represents a new way of thinking about programming. Fundamentally, programmers need to think in terms of APIs to improve code quality for programs that handle Space products and services to meet the goals of flexibility, interoperability, and security.

Imagery API Discussion

An imagery API is a good illustration of designing for flexibility and interoperability. XML can be used to define classification, the type of object, and any metadata for the object. Figure 2 illustrates how XML (in Microsoft C# format in this example) can be used to provide Space imagery through an

API. The XML code defines the type of image as a JPEG file, the location of the image on the server, the classification of the image as secret, and additional meta data including the originator, keywords, and notes. This simple illustration meets the criteria of flexibility, interoperability, and security. A coalition partner with any C# based XML parser (such as Microsoft SharePoint) can read and import the image. Furthermore, including classification information in the XML string allows the United States to control access to information based upon the clearance level of the recipient. The classification element in figure 2 can be changed to any level using software on the U.S. side of the network. Classification is written into the language, so the API only allows users to access information that meets their security clearance level.

Security Concerns

Cryptographic protocols can be built into Space APIs on C-6/J-6 networks. The protocols include mechanisms for key agreement and user authentication, symmetric encryption during data transport, and non-repudiation methods.²⁶ Key agreements are common security methods that allow only computers with installed keys to exchange information, prohibiting any unkeyed system from accessing the information.²⁷ The C-6 can generate keys to provide U.S. and coalition networks as a security method to authenticate users and prevent data leakage. Additionally, the C-6 can require 256- or 512-bit data encryption to transmit information between APIs on U.S. and coalition networks. SSL 256 is a common standard used in financial transactions. Requiring a secure data transport mechanism and secured software for both the sender and receiver are policies that the C-6 can propagate

to coalition partners. A non-repudiation method is used to ensure the integrity and origin of the data, ensuring that the data has not been intercepted and changed in transport.²⁸ Digital certificates already are used by the DOD as a non-repudiation method, and they can be used on coalition networks for Space APIs.

Conclusion

The National Space Security Strategy and Office of the Secretary of Defense directives require the creation of policies, facilities, and mechanisms for coalition Space operations. The U.S., NATO, and Australia, Canada, and Great Britain have identified information sharing as one of the biggest challenges in this process. The Army Space community needs to work within the existing information classification system to create software that allows data from Space products and services to be flexible, interoperable, and secure.

Designing Space software with XML-based APIs integrated into the software is a solution that uses existing commercial-off-the-shelf technology to meet the goals of flexibility, interoperability, and security. XML-based APIs do not require any new inventions, major investments in new computer systems, or any major Doctrine, Operations, Training, Materiel, Leadership and Education, Personnel, and Facilities changes. APIs can be written for existing applications, and new applications can be designed with integrated APIs. Positioning, navigation, and timing; intelligence, surveillance, and reconnaissance; satellite communications; weather; missile warning; and additional Space products and services can take advantage of APIs to securely share information in coalition Space operations while maintaining flexibility, interoperability, and security.

```
<xsd:complexType name="ImageObject">
  <xsd:sequence>
    <xsd:element name="ImageType" type="xsd:JPG"/>
    <xsd:element name="Location" type="lserver1\c6\spaceimg\lor6.jpg"
      maxOccurs="unbounded"/>
    <xsd:element name="Classification" type="secret"
      maxOccurs="unbounded"/>
  </xsd:sequence>
  <xsd:attribute name="Originator" type="xsd:text" use="required"/>
  <xsd:attribute name="Keywords" type="xsd:text"
    use="optional"/>
  <xsd:attribute name="Notes" type="xsd:text"
    use="optional"/>
</xsd:complexType>
```

Figure 2. Example of an XML code sample defining classification and additional attributes for Space imagery.

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Footnotes

¹ Thomas G. Single, "New Horizons: Coalition Space Operations," *Air and Space Power Journal*, 24 (Summer 2010), pp. 72-84.

²⁻⁷ *Ibid.*

⁸ Sophy Gardner, "Operation Iraqi Freedom: Coalition Operations," *Air and Space Power Journal*, 18 (Winter 2004), pp. 87-99.

⁹⁻¹⁰ *Ibid.*

¹¹ James R. Clapper and Robert M. Gates, *National Security Space Strategy* (Washington: Department of Defense and Office of the Director of National Intelligence, January 2011), http://www.defense.gov/home/features/2011/0111_nsss/docsNationalSecuritySpaceStrategyUnclassifiedSummaryJan2011.pdf.

¹²⁻¹⁴ *Ibid.*

¹⁵ Robert M. Gates, "National Security Space Strategy (NSSS) DOD Near Term Tasks," OSD 75840-11.

¹⁶⁻¹⁷ *Ibid.*

¹⁸ World Wide Web Consortium, "W3C Mission," <http://www.w3.org/Consortium/mission.html>.

¹⁹ World Wide Web Consortium, *Ubiquitous Web Domain, "Extensible Markup Language (XML),"* <http://www.w3.org/XML/>.

²⁰ Martin Fowler, *Domain-Specific Languages* (Boston: Pearson Education, 2010).

²¹⁻²² *Ibid.*

²³ World Wide Web Consortium, *Technology and Society Domain, "Government Linked Data Working Group Charter,"* <http://www.w3.org/2011/gld/charter>.

²⁴ Joshua Bloch, "How to Design a Good API and Why It Matters," <http://lcsd05.cs.tamu.edu/slides/keynote.pdf>.

²⁵ *Ibid.*

²⁶ Federation for Identity and Cross-Credentialing Systems, *Guideline Version 3.0* (Fairfax, Va.: Sept. 1, 2010), [http://fixs.publishpath.com/Websites/fixs/Images/Fixs%20Security%20Guidelines%20v3.0%20\(Sept.%201.%202010\).pdf](http://fixs.publishpath.com/Websites/fixs/Images/Fixs%20Security%20Guidelines%20v3.0%20(Sept.%201.%202010).pdf).

²⁷⁻²⁸ *Ibid.*

BY LTC VICTORIA MIRALDA

SATELLITE BANDWIDTH CAPACITY

Challenges to Ensuring Future Availability

The National Space Policy identifies the importance of the U.S. Space industry to American national security:

“A robust and competitive Space sector is vital to continued progress in Space. The United States is committed to encouraging and facilitating the growth of a U.S. commercial Space sector that supports U.S. needs, is globally competitive, and advances U.S. leadership in the generation of new markets and innovation-driven entrepreneurship.”¹

Despite this national security imperative, considering the cost and the likely surge in bandwidth requirements for U.S. government and military purposes during national crises, the health of America’s commercial Space industry is at risk. While the National Space Policy accurately portrays the significant role a healthy Space sector provides to national security, there are indicators U.S. policy and activities are not resulting in assured access to and availability of future Space capabilities, specifically bandwidth.

Recent contingency operations demonstrate an exponentially increasing global demand for satellite bandwidth during times of operational surge. Unpredictable bandwidth demand strains capacity limits within the commercial satellite industry. The risk escalates when juxtaposed with the last ten years’ unprecedented Department of Defense (DOD) reliance upon commercial satellite capabilities to support operations. Market dynamics such as long lead times and high commercial demand

during non-crisis periods constrain commercial industry’s ability to meet DOD satellite bandwidth capacity requirements on short notice.


Given the realities of this new global environment, there are three areas where the U.S. government (USG) and DOD can evolve to mitigate risk and enhance the potential for future availability and affordability of satellite bandwidth, both commercial and military.

Revoke current restrictions on exporting commonly available commercial communications satellite technology by replacing outdated U.S. law that impedes global competitiveness with responsive legislation to protect critical technologies while permitting U.S. competitiveness in global markets.

Evolve and enforce processes for procuring and managing satellite bandwidth capacity through an empowered USG focal point for commercial satellite communications (COMSATCOM) in accordance with national priorities.

Establish a national Space executive authority empowered to responsively drive essential future military satellite communications (MILSATCOM) capability requirements for the United States, to include the intelligence community and other USG agencies and departments.

The Army Space community, comprised of Civilians and Soldiers from every branch of the Army, impacts the Department of Defense’s interaction with the U.S. Space industry by identifying priority Space requirements, developing Space-enabled capabilities, and influencing DOD policy and strategy. It serves national and DOD



interests to both ensure the availability of future military satellite capacity and to enforce optimized procurement of commercial bandwidth capacity.

This article is the first of two addressing challenges in ensuring available and affordable satellite communication (SATCOM) bandwidth in support of DOD operational requirements. The first segment specifically explores those SATCOM challenges the Army Space community can help the nation address. It explores obstacles and opportunities to the satellite market segment the DOD should remain cognizant of to help shape future availability of all satellite communications capacity by U.S. companies.

While the purpose of this article is not to evaluate the merits and costs of COMSATCOM compared to MILSATCOM, that topic is a natural residual question and is worthy of a separate analysis. Considering the trends of DOD operations in the past decade, it is safe to assume both sources of bandwidth will continue to be required given the degree of overall USG reliance. The decision factors for the right mix of military and commercial satellite communications capacity are many and vary with budget, global operational environment, and security demands. However, ensuring the availability of both categories is a measurement of U.S. satellite industry health. Understanding the nature of the two categories and their costs, program risks, operational resiliency, and developmental timelines is essential to making informed decisions. The percentage of bandwidth capacity from each source the USG pursues, whether leasing from industry providers or owning through a Program of Record (POR) acquisition effort, must be weighed against projected whole of nation requests and national strategic priorities.

U.S. Space Industry-Satellite Segment

The Space industry broadly encompasses nongovernment, for-profit Space companies. Within the Space industry there are multiple market segments, one of which is the satellite industry segment. The satellite segment is comprised of four components: satellite manufacturing, satellite services, launch, and ground equipment. All four segments are essential to support USG and DOD operations, but it is the satellite manufacturing component that provides the spacecraft for bandwidth capacity to the DOD. This component produces both COMSATCOM and MILSATCOM spacecraft the Department of Defense relies upon.

Spacecraft transponder services, whether American, foreign, or consortium are in turn provided and sold by commercial providers such as SES World Skies, INMARSAT, and INTELSAT. Services may range from bandwidth capacity access to full-scale end-to-end network services. The satellite transponder bandwidth portion is the primary focus for availability concerns and is addressed in this article. However, DOD is reliant upon all four segments for advanced access to and use of satellite carriers. It is in this aspect that the health of the U.S. satellite industry is a vital DOD and national security interest.

Separately but related, the U.S. satellite industry also

builds MILSATCOM capabilities such as the Wideband Global Satellite System, Defense Satellite Communications System, and Mobile User Objective System. The three U.S. satellite manufacturing companies are Boeing, Lockheed Martin, and Space Systems Loral. The DOD or USG then manages, operates, and maintains these military-owned spacecraft as a POR throughout the system's lifecycle.

The Impact of ITAR

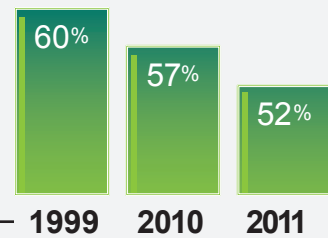
A leading issue impacting the U.S. satellite industry remains export restrictions imposed since 1999. There is widespread consensus these restrictions have marginalized American technology leadership in a globally competitive environment. Despite enduring U.S. Space policy advocating this competition, the U.S. Space industry is constrained by export trade regulations having negative effects on competitiveness. The satellite manufacturing industry is the only American commercial sector mandated by law to have all goods managed as munitions. The effect has been markedly negative.² In the view of many analysts, export restrictions have hampered America's commercial Space technology vitality, leadership, and workforce.

In a global environment, this self-imposed trade barrier is the natural result of U.S. export regulations implemented through the State Department's International Traffic in Arms Regulations (ITAR). Each U.S. satellite built incurs approximately \$1 million in additional costs due to ITAR compliance requirements. Loss of market competitiveness is compounded by the decrease of scientists and engineers in the U.S. Space industry workforce, again attributed at least in part to the impact of costly U.S. trade restrictions.³ Considering the overall Space industry revenue growth of 11 percent in 2009, a sustainment or growth in employment would be expected. Instead, in 2009 there was a 5.5 percent decline in the Space industry workforce, keeping with the general trend since 2002.⁴ In 2010 employment declined even more steeply.

In 2010 proposed U.S. legislation, House Resolution (H.R.) 2410, the "Foreign Relations Authorization Act, Fiscal Years 2010 and 2011," addressed the need to reform satellite industry export controls. This legislation was proposed to alleviate some of the more damaging process and blanket categorization restrictions automatically applied to all Space and satellite components on the U.S. Munitions List. The proposed legislation would have restored the President's authority to decide when this restriction was or was not appropriate based upon current availability of technologies worldwide. The Satellite Industry Association president, in a letter to the chairman of the House of Representatives Committee on Foreign Affairs, stated H.R. 2410 will "help put U.S. manufacturers of satellites and related components on more competitive footing in the \$144 billion global satellite market, reinforcing America's global technological leadership, while safeguarding jobs and critical Space technology for the nation."⁵

H.R. 2410 did not pass in 2010. It was re-introduced in 2011 as H.R. 3288, the "Safeguarding United States Satellite Leadership and Security Act of 2011," to reform the

U.S. Share of Global Satellite Market



framework for satellite export controls. The bill would authorize the President to remove satellites and related components from the U.S. Munitions List, subject to certain restrictions and congressional oversight. The bill's last action was referral to the House Committee on Foreign Affairs on Nov. 11, 2011.

The Health of the Space Industry

The 2008 Center for Strategic and International Studies report titled "Health of the U.S. Space Industrial Base and the Impact of Export Controls" concluded that American preeminence in Space is challenged in many areas. "Satellites and their components were placed on the U.S. Munitions List due to congressional action with the intent of limiting the spread of Space technology. However, this has had the unintended consequence of encouraging the proliferation of Space capabilities, [and] has not prevented the rise of other Space powers but has impacted U.S. competitiveness."⁶ When satellites were placed under the ITAR in 1999, the U.S. Space industry held more than 60 percent of the global manufacturing market. For the year ending 2010, U.S. market share was below 57 percent, and for 2011, 52 percent. In 2011 satellite manufacturing revenue globally declined 20 percent, and the U.S. portion declined at a sharper rate of 27 percent.⁷

While some of that decline may be a natural result of globalization, the lost potential may never be known in terms of sales, competitiveness, and human capital in the U.S. satellite industry. In 2010 global satellite industry employment fell 2.9 percent from 2009, including the loss of 7,302 American high-tech jobs.⁸ The health of the satellite industry directly impacts the ability of the United States to inspire future expertise in the science, technology, engineering, and math fields critical to the recovery of the U.S. economy and its ability to support a healthy gross domestic product and ultimately America's national security.

"The U.S. government is the single largest customer of the commercial satellite industry today," said Robert T. "Tip" Osterthaler, president and chief executive officer of SES Government Solutions, a SATCOM service provider. "Satellites are expensive but an absolute necessity in meeting the demands of the U.S. government. In this tough budget environment, the country cannot afford business as usual and what we've experienced with the traditional ways of purchasing satellite communications capabilities. By fostering competition and increasing opportunities for the government to work directly with satellite operators, we can ensure that American tax-

payers get their money's worth and that our service men and women in harm's way have the satellite communications they need to perform their missions."⁹

The U.S. satellite industry is losing share and confidence among international markets. Placing all satellite components under the U.S. Munitions List continues to constrict U.S. international engagement, economic partnerships, and coalition interoperability with the global Space community. This circumstance feeds a growing separation between the U.S. commercial Space industry, DOD, and emerging international Space powers.

Operational Reliance

In the majority of contingency operations, force projection operations, and disaster relief support operations conducted by the U.S. military, satellite communication capabilities are the strategic umbilical cord linking USG, private contractor, agency, and military teams. Contingency operations are inherently reliant upon non-line-of-site communication capabilities due to either a contested security environment or the need for rapid U.S. assistance where a crisis is evolving. Such operations are typically conducted with minimal notice in distant and austere locations where terrain or infrastructure realities limit access to terrestrial-based communications and autonomy in operations often is a required condition for success. COMSATCOM is a critical component of assured force projection and the USG's ability to globally conduct operations. Recent examples include USG disaster relief support to Japan and operations in Libya that highlight the need for swift initial and often continued reliance on COMSATCOM assets.

Augmenting and enhancing MILSATCOM capabilities, COMSATCOM is a co-partner in providing America's industrial base strength as a vital component of national security. It enables U.S. diplomatic, information, military, and economic elements of power. In addition, national Space capability and capacity are natural deterrents to threats. However, assessing the satellite industry's ability to support DOD operations and strategic USG objectives presumes adequate access to assured communications capabilities. This is an increasingly risky assumption as evidenced by the decline in U.S. leadership in the Space industry and satellite segment.

In interviews with private-sector companies supporting USG service contracts, each indicated their support operations rely almost exclusively on COMSATCOM. This connectivity provides them access to U.S.-based logistics and supports contract personnel with

\$500 Million

Amount U.S. military spent
on COMSATCOM 2009

resources for contingency operations. In addition to increased DOD reliance on private-sector services, and their compounding demand for COMSATCOM capacity, military use of this bandwidth has exceeded the capacity provided by MILSATCOM since 1993, shifting reliance to the private-sector market.¹⁰ The combined demand military and contractor support operations place on COMSATCOM capacity creates competition for access and drives higher pricing. Yet, current DOD reliance on COMSATCOM remains extensive. Considering the laws of supply and demand, increased contractor demand on COMSATCOM capacity creates a supply dynamic that has further driven up market prices.

Constraints

A driving business case constraint is that USG commercial bandwidth providers, no matter how patriotic, require a high percentage of investment capital up front in order to build and launch a satellite. It is becoming more infrequent that such investment security comes from the USG. Thus, satellites built with venture capital and private funding typically have a small percentage of remaining, uncommitted capacity available for DOD use. Therefore, when unplanned requirements arise in frequency bands or geographical locations that MILSATCOM cannot accommodate, options are becoming more and more limited.

One COMSATCOM company explained that due to the risk in short-term DOD bandwidth leases and Defense budgets, it must sell available capacity to commercial buyers even at a lower price when the buyer agrees to the stability of a long-term contract. The resulting capacity limitation influences both COMSATCOM cost and access for the USG and DOD. This is seen first in the price of contractor support, including the contractors' expenses for COMSATCOM capacity, and second in an overall higher cost due to the increased commercial demand.

In 2009 the U.S. military spent approximately \$500 million on leased COMSATCOM capacity.¹¹ Recent Wideband Global Satellite System costs show a well-run MILSATCOM POR can produce a satellite for approximate-

ly \$300 million. In light of the fact that most satellites have a life expectancy of seven to 12 years, this indicates an efficient POR can be cheaper than leasing (\$2.1 billion versus \$3.5 billion), assuming seven years' use and not taking into account payload monitoring and health expenses. Often, satellites far exceed their life expectancy, providing even greater return on USG investment and making the case for a strong fleet of MILSATCOM despite the upfront POR "sticker-shock."

Conclusion

While the U.S. government and Department of Defense rely upon commercial satellite communications and expect it to be available, they must collectively do more to improve and assure future satellite communication bandwidth access and availability. The USG and DOD must leverage whole of nation purchasing power to obtain supportable rates while supporting the Space industry's health by improved forecasting and planning and by pursuing reliable and effective Programs of Record for Space capabilities. The national security risk is avoidable if the USG and DOD can support a healthier Space and satellite industrial base during non-crisis periods. This step requires removal of International Traffic in Arms Regulations restrictions and improving MILSATCOM processes to provide a balanced mix of both commercial- and military-provided bandwidth options. Satellite bandwidth will be available at affordable rates in the future only if the United States takes these active steps and reforms to permit true national prioritization of capabilities. These actions will not only stimulate healthy competition but also fuel workforce innovation and strengthen the Space industrial base domestically and internationally, thus providing increased American national security.

The next article on SATCOM challenges will address the establishment of a national executive authority empowered to drive Program of Record capability requirements for whole of government military satellite communications and the need for an empowered U.S. government focal point for procurement of commercial satellite communications in accordance with national priorities.

Footnotes

¹ National Space Policy of the United States of America (Washington: The White House, June 28, 2010), pg. 3.

² Patricia Cooper, Satellite Industry Association, "SIA Letter to Congressman Berman in Support of Section 826 of H.R. Bill 2410: Foreign Relations Authorization Act for FY2010 and FY2011," June 8, 2009, http://www.sia.org/news_events/Letters/SIA_HR_2410.pdf; Patricia Cooper, Satellite Industry Association, "Comments of the Satellite Industry Association to the Directorate of Defense Trade Controls Regarding Revisions to the United States Munitions List," Feb. 8, 2011, http://www.sia.org/PDF/SIA_Comments_to_DDTC_on_its_ANPRM-USML_FINAL2011.pdf; Patricia Cooper, Satellite Industry Association, "Comments of the Satellite Industry Association to the Bureau of Industry and Security Regarding Revisions to the Commerce Control List," Feb. 7, 2011, http://www.sia.org/PDF/SIA_Comments_to_BIS_on_its_Notice_of_Inquiry-CCL_FINAL2011.pdf; Thomas Young, Bill Ballhaus, and Pierre Chao, "Briefing of the Working Group on the Health of the U.S. Space Industrial Base and the Impact of Export Controls" (Washington: Center for Strategic and International Studies, February 2008); and James Armor, "Space as a Contested Domain" (lecture, Industrial College of the Armed Forces, Dec. 1, 2010).

³ Cooper, "SIA Letter to Congressman Berman in Support of Section 826 of H.R. Bill 2410: Foreign Relations Authorization Act for FY2010 and FY2011."

⁴ A. Thomas Young, Edward Anderson, Lyle Bien, Ronald Fogleman, Keith Hall, Lester Lyles, and Hans Mark, Leadership, Management, and Organization for National Security Space (Alexandria, Va.: Institute for Defense Analyses, 2008).

⁵ Young, Ballhaus, and Chao; Satellite Industry Association, news release, "2010 State of the Satellite Industry Report Shows Continued Growth in 2009," June 8, 2010, http://www.sia.org/news_events/pressreleases/Press_Release_StateoftheSatelliteReport2010FINAL.pdf.

⁶ Young, Ballhaus, and Chao, pg. 28.

⁷ Satellite Industry Association, "2010 State of the Satellite Industry Report Shows Continued Growth in 2009."

⁸ Ibid.

⁹ E-mail to author from Nicole C. Robinson, SES Government Solutions, Dec. 22, 2011.

¹⁰ Interview with author, Patrick Rayermann, Chief of Staff, Department of Defense Executive Agent for Space Staff, March 2011.

¹¹ Interview with author, Michelle Nassar, Chief, COMSATCOM Center, Network Services, Defense Information Systems Agency, March 18, 2011.



Crew Chief Sgt Jeffery Blake Powell works with his crew at Alpha Detachment in Stuttgart Germany. Powell's crew won site Best Crew for JTAGS Europe. Photo by Rachel L. Griffith



Osan
Soldiers
Named as

BEST MISSILE WARNING CREW

STORY BY RACHEL L. GRIFFITH,
USASMDC/ARSTRAT PUBLIC AFFAIRS





SPC Jonas Knehans and SPC Trenton Huntsinger, both of Delta Crew, Charlie Detachment, work together to perform routine maintenance on one of Charlie Detachment's satellite dishes at Osan Air Base. *Photo by Rachel L. Griffith.* CPL Daniel Romero, Delta crew chief, adjusts a satellite dish on Osan Air Base. Romero and his team were named the Army's Best Missile Warning Crew for 2011. *Photo by Rachel L. Griffith.* The Army's Best Missile Warning Crew for 2011 poses with detachment and brigade leadership **LEFT TO RIGHT:** CPT Corey H. Ruckdeschel, commander, Charlie Detachment, 1st Space Company; SPC Trenton Huntsinger, SPC Jonas Knehans, CPL Daniel Romero, and COL Eric P. Henderson, commander, 1st Space Brigade. *Photo by Dottie White*

A team of Soldiers stationed at Osan Air Base, South Korea, won the title of the Army's Best Missile Warning Crew for 2011.

Delta Crew from Charlie Detachment, 1st Space Battalion, 1st Space Brigade received the honor after competing against 15 other similar-sized teams from theater early missile warning detachments. The 1st Space Company has four detachments located around the world known as Joint Tactical Ground Stations (JTAGS). In the late fall, the Soldiers at these sites, located in Germany, Qatar, South Korea, and Japan, competed for the title.

Led by crew chief CPL Daniel Romero, Delta Crew members showed excellence in all aspects of their job as JTAGS operators. They are Romero, primary operator; SPC Jonas Knehans; and SPC Trenton Huntsinger, secondary operator.

"The competition has been a tradition for quite a while in JTAGS," said SFC Andrew B. Brown, the JTAGS training and evaluations noncommissioned officer in charge at U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. "It's important to the crews because it gives them a chance to showcase their knowledge and expertise that they are using on a daily basis. We have four detachments within JTAGS, and it's a friendly competition, but each site is always trying to outdo each other."

The JTAGS mission is one that never rests, with crews on watch 24 hours a day, seven days a week. The crews work long hours on a daily basis to accomplish their mission, providing early missile warning.

"They were tested on a variety of skills, from physical fitness aspects, to simulated real-world operations designed to test their decision making ability and the crew chief's ability to lead," said Brown.

Brown was part of a three-person evaluation team from Colorado Springs that traveled to all four detachments to oversee the competition. The competition was also overseen by the 1st Space Company's commander, MAJ Christopher Turner, and first sergeant, SFC Joseph Collins.

"I think it's a great honor to recognize excellence, which is what the best crew does," said COL Eric P. Henderson, 1st Space Brigade commander. "It's important to point out that our adversaries do not take into account 'who' is on watch as it relates to missile warning. My thought is that every crew needs to be 'best crew' when the lives of our countrymen and our allies and national interests are at stake."

- **"Korea is a site that rarely has longevity.**
- **To have a crew from here that has only**
- **been together for four months prove that**
- **dedication and know-how can outweigh**
- **longevity and experience is excellent."**

— CPT Corey H. Ruckdeschel

Delta Crew is unique, as its crew leader is a corporal, the lowest of the noncommissioned officer ranks. Most crew chiefs within JTAGS detachments are staff sergeants.

Romero didn't get to be the crew chief he is on his own. The detachment leadership is in place to help mentor and guide the young Soldiers who are assigned to JTAGS. Charlie Detachment is no exception. Commanded by CPT Corey H. Ruckdeschel and expertly led and run by noncommissioned officer in charge SFC Christopher L. Barber, the dedication of the leadership in Korea has not gone unnoticed by senior leaders within the command.

"It's awesome that a crew from JTAGS Korea can represent not only the 1st Space Company, but the Army," Ruckdeschel said. "Korea is a site that rarely has longevity, and to have a crew from our location that has only been together for four months prove that dedication and know-how can outweigh longevity and experience is excellent. Their win in this competition was about heart, dedication, and willingness to learn."

The senior enlisted leader on site appreciates the efforts of these Soldiers.

"This crew took a great interest in the competition," said Barber. "They dedicated many hours of their off time to not only prepare for the Best Crew Competition, but to make themselves better JTAGS operators overall. To have them win the title of the Army's Best Missile Warning Crew is a reflection of the effort the Soldiers put into preparing for their mission."



BY LTC J. DAVE PRICE

STRATEGIC PHILOSOPHY



LTC J. DAVE PRICE

is a student at the U.S. Army War College in Carlisle, Pa., and former commander of the 1st Space Battalion, 1st Space Brigade, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command at Peterson Air Force Base, Colo.

Author's Note

This article was written to encourage new ideas and infuse our organizations with innovative thought and strategic thinking. As a company commander, I was motivated and excited to lay out a philosophy and plan. In most instances, my thoughts focused on physical fitness, morality, discipline, maintenance, safety, quality of life, and awards. I provided a philosophy for company teams but probably not very well, in hindsight. In battalion command, I did not provide a philosophy or a vision. My belief was that brigade commanders had a philosophy, and general officers had visions. I had a mission, purpose, and key tasks, and I was in direct support of the higher headquarters. In lieu of a philosophy, I gave "day one" command guidance that provided purpose and intent and laid out the principles of the organization. Instead of presenting "new" command principles, I emphasized those offered by Colin Powell—for example, "not to defend your base but to let change lead growth."

Having commanded four times, twice in Space units, gives the perspective to understand that the Army's only Space brigade requires an unusual framework and strategy. The brigade concepts presented are a framework that can, and should, apply up and down the organization. This article should in no way be construed to undermine the hard work and initiatives put forward by previous or current brigade leaders.

IC LEADERSHIP, Y, AND THE SPACE BRIGADE

One of the greatest problems of our time is fostering a leadership climate that in turn creates a learning organization. “It is just not possible any longer to figure it all out from the top, and have everyone else following the orders of the grand strategist. The organizations that will truly excel in the future will be the organizations that discover how to tap people’s commitment and capacity to learn at all levels of the organization [and to pass it on].”¹ This article is not designed to show you “how” to create a learning organization but how leadership and philosophy will help you set the conditions and shape the outcome and end-state for organizational learning to occur.

Command philosophy is a state of mind and must be translated into working concepts. The key to success is to be yourself, and the most important document in your command is your philosophy. COL John G. Meyer, Jr., also stated many of the company essentials in a command philosophy in his book *Company Command*.² These philosophies are by necessity focused on the tactical aspects of command.

Understanding the proposed and possible missions of the organization is the first step in developing a strategy and philosophy. Tactically speaking, “colonels and lieutenant colonels—the leaders of battalions, squadrons, regiments, and brigades—are responsible for directing and controlling the battle.”³ Those words were written 30 years ago, and they remain viable today. However, brigade commanders require a broader approach in their strategy and philosophy for developing a vision and a team, specifically in a Space brigade. The current mission of the 1st Space Brigade is close to this: conduct continuous global Space force enhancement operations, Space support, and Space control operations in support of U.S. Strategic Command and supported combatant commanders, enabling shaping and decisive operations.⁴


Strategic leadership, in error, implies a command philosophy should lay out leadership priorities in your command. To avoid confusion let’s define these terms better. Command

is the authority given in accordance with the United States Code and Army regulation with taking over a military organization whereby the commander is invested with official responsibility for team and mission. Leadership is the method by which a commander chooses to guide his or her organization and complete the mission; there are many leadership styles. A command philosophy is used to identify factors which are important to the leader and should be closely observed. Command priorities are tasks or lines of operations identified as essential for the success of the mission or unit. A vision is the end-state that the commander wants to achieve. Finally, the command strategy is tasks (ways) and resources (means) tied directly to the philosophy (concept of the operation) and vision (ends or commander’s intent).

Space is no longer extraordinary to the Warfighter. The Space brigade is responsible for providing world-class Space force enhancement, satellite control, Space control, and Space special technical capabilities to the Warfighter. The brigade will meet the growing demands that the Space field requires, and it must remain flexible to respond to emerging missions. It must be predictive in shaping and understanding the needs of theater commanders. The brigade must remain agile in building and providing detachment-level teams when and where needed.

The Space brigade must take deliberate steps to meet these requirements with high-demand, low-density assets and must review the capability to grow within resources as needed. It must reduce overhead and “fat” in the organization and streamline staffs, efforts, and resources where feasible.

The brigade can and should task organize to provide combat-ready Space forces and capability, leveled on operational requirements, and become a learning and strategically oriented organization. Space Soldiers cannot fail to meet missions and must assume reasonable risk when necessary to keep the organization on task and simultaneously tackle these challenges.



The 1st Space Brigade is a multi-component unit with diverse Space missions and capability. The brigade's three battalions are made up of and resourced from both active, Army Reserve, and Army National Guard higher headquarters. However, it will be important to consolidate staff, resources, and requirements where U.S. law and Army regulations permit in all three components. The brigade forces are focused on all pillars of Space capability minus Space force application which is provided by the 100th Missile Defense Brigade. However, the 1st Space Battalion is tasked to train and organize Army support teams, conduct global missile warning, and conduct Space control and special missions simultaneously.

The command could task organize into a 2nd Space Battalion in order to focus operational capability on special and Space control missions, both of which are critical assets for combatant commanders. A task force needs to be created to provide options in grouping battalion and brigade staffs and efforts together. Also, a task force could be created that will devise options in reducing legacy missions and options to synchronize and create efficiencies within Space support, satellite control, and reserve component missions.

The brigade will have to continue to provide highly trained and ready Space forces and capability while becoming more predictive of the future and scanning the environment. The unit must be able to re-organize into flexible detachment-level teams and provide agile Space capabilities. This brigade command must become more adaptive and efficient in using resources and providing Space capabilities, while postured to learn and operate effectively in support of combatant commanders now and with a focus through ten years out.

There are important factors in leading a strategic organization, developing strategic leaders and thinkers on your team, and developing a strategic philosophy. Some key elements in strategy development are environmental scanning, futuring, organizational culture and leadership, and leading change. In order to develop a strategically oriented organization, strategic leaders must at a minimum look at those four influencers.

Environmental scanning is detecting the external environmental demands on an organization. The organization should scan to detect trends, define threats, promote a future orientation, and alert staff and commanders of near- and far-term factors and influences.⁶ In the 1st Space Brigade, there are many outside influences and stakeholders that impact it, including the higher headquarters (U.S. Space and Missile

Defense Command/Army Forces Strategic Command) and its multiple divisions; many Space and defense contractors that support operations and logistics contracts; U.S. Strategic Command and its Joint Functional Component Command for Space (JFCC-Space); Air Force Space Command; the U.S. Air Force as Executive Agent for the Department of Defense Space; the Colorado Army National Guard component; the U.S. Army Reserve component; and many others.

All stakeholders manipulate the shaping, direction, and velocity of the brigade organization and impacts in the maturation of the unit. Scanning is necessary to keep external organizations in its field of view continually and determining those impacts on the brigade and its mission. For our purpose here, there is not enough time to identify all of the influences by each organization or be predictive of their impacts. However, in one example of scanning, in hindsight, the higher headquarters (for global Space operations) changed multiple times in the course of a decade.

U.S. Space Command in Colorado Springs merged with U.S. Strategic Command at Offutt Air Force Base, Neb., in 2002.⁷ It was later split into subordinate functional commands, and the Space brigade assets were assigned to JFCC-Space and JFCC-Global Strike. Later responsibility for Space was given to the commander of the 14th Air Force as the Commander, Joint Space Operations, before later being re-designated as JFCC-Space with the majority of Space command and control assets. While all of these changes could not all be observed through continuous scanning, some issues may have been recognized and adjustments made in response.

Futuring is predicting outcomes of decision-making inside an organization. Predictions are conducted to identify worst case, most probable, or alternative courses of actions in the environment with likely inputs by stakeholders. Understanding these potential outcomes may arm an organization on how it may conform, act, or mature to be ready for the future. This is done by "detecting scientific, technical, economic, social, and political-military trends and events important to the institution (brigade), and defining the potential threats, opportunities, or changes for the institution implied by those trends and events."⁸ Futuring will identify reasonable gaps in planning operations and Space. These gaps may be closed using quantitative and qualitative analyses.

For example, if the brigade predicted a future where additional Space control and special mission capabilities will be requested by combatant commanders, then it would posture for that outcome. Leadership would make the decision

Proper environmental scanning and futuring are necessary to remain proactive and strategically capable, competent, and organizationally sound.

required to take on those responsibilities and introduce an additional force (Space battalion) designed for these requirements. Why would it predict this? If scanning and stakeholder show trends in Space control and special mission capability are not yielding or shrinking, then the organization will prepare to command and control a growing capability. If, in another example, global missile warning capability was predicted to no longer be a core Army mission or requirement, the brigade would conduct analysis and take measures to manage resources inside the organization to accept these changes.

Predictions might be wide of the mark, but it is more damaging to fail to acknowledge the environment and its impacts on a strategic organization. Proper environmental scanning and futuring are necessary to remain proactive and strategically capable, competent, and organizationally sound. Of course, there are other stakeholders with the responsibility for developing requirements and conducting combat and force development. The intent is not to compete with these stakeholders but to be responsible and act independently at first, and later compare notes to reach viable consensus for the growth and best interest of the overall team. But to become a strategic organization, you must first act like one. Organizations require the right command climate to allow cross talk and analysis along varying lines of effort.

The organizational culture and leadership is again unique in Space. There are two brigade headquarters under USASMDC/ARSTRAT; one is a reserve component and the other is a multi-component headquarters. USASMDC/ARSTRAT has diverse active, research, and development missions. There are four cultural misalignments: power distance, in-group collectivism, institutional collectivism, and assertiveness.⁹ One example of this is the power distance between Huntsville, Ala., where the major command headquarters is and Colorado, where the two brigade headquarters and the deputy commanding general for operations reside. This circumstance has to do with the legitimate pull between essential centralized con-

trol and necessary decentralized innovation.¹⁰ This originality can be stifled, imagined, or real when this power distance exists, even if this is more a factor of distance than power.

In leading change, senior leaders need to flatten the internal environment in order to reduce the power distance. The goals and objectives can be stated in tactical and strategic terms and correlated so all members are empowered to act on them. Army Space commands are few in number with limited resources and assets, and it is absolutely necessary to link their strategy from the top down.

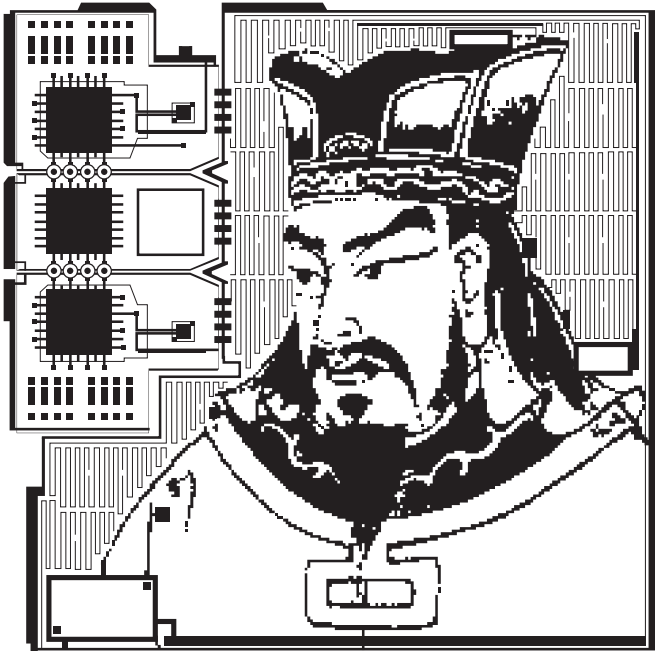
In summary, these responsibilities lie within the brigade as well as cooperatively within the other elements of the higher headquarters. The brigade and higher headquarters must create efficiencies in order to survive and remain effective to meet the needs of the Joint and Army communities, but more importantly to meet the needs of the American people. It all begins with a strategy through a sound vision and philosophy with an acceptable end-state. This organization must be pro-active and become a learning organization willing to listen to its junior and senior members alike and ensure institutional knowledge is captured and does not “PCS.”

Leadership must be courageous in making decisions and predicting outcomes; it must hold up moral and ethical values, all while being a good steward of resources within the broader Department of Defense and the Space community. It must be imaginative, predictive, lasting, and foster a learning environment and culture. The brigade must actively shape its environment with inventive people all while maintaining its sharp technical and tactical edge.

The “ideas presented [in this article] are for destroying the illusion that the world is created of separated, unrelated forces. When we give up this illusion—we can then build ‘learning organizations’ where people continually expand their capacity to create results they truly desire.”¹¹

Footnotes

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- ³ Dandridge M. Malone, *Small Unit Leadership: A Commonsense Approach* (Novato, Calif.: Presidio Press, 1983): 26.
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- ⁵ James L. Morrison, “Environmental Scanning,” <http://horizon.unc.edu/courses/papers/enviroscan/>.
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孫子兵法

SUN TZU SPACE WARRIOR

Although Space operations had yet to be envisioned at the time he lived, the timeless theories on war put forth by Sun Tzu almost 2,600 years ago remain relevant to military planners, especially in the context of the unconventional warfare our nation continues to wage against those who aim to harm our way of life. The continued conflict the United States faces requires the development of new and innovative strategies that surpass conventional thought to achieve victory against a non-traditional enemy who is elusive, ideologically driven, and hides from direct confrontation on the battlefield.

This article is the first in a series where we will explore the question of what if Space and Missile Defense operations existed at the time many of the world's classical military theorists wrote their seminal works. What would they have said about these domains that are relevant to us today as we continue to develop, shape, and deliver the capabilities for today, tomorrow, and the day after tomorrow?

Chinese Author Travels through Time, Updates His “Art of War”

**BY COL TIMOTHY R. COFFIN
& MAJ KEN RICH**

The first and arguably one of the oldest theorists, Sun Tzu, has chosen the interview style to open our conversation on the applicability of classical military theory to the congested, contested, and competitive domain of Space. A profound aspect of Sun Tzu's 13 principles in "The Art of War" is that they can be applied to almost any problem. He demonstrated an extensive understanding of all aspects of warfare, providing us with a comprehensive and coherent guide to the way war should be conducted.

We transported Sun Tzu from 500 B.C. to the present day, made him the honorary Deputy Commanding General for Operations for a day at U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, and asked for his guidance.

ASJ BG Sun Tzu, your 13 principles are certainly worthwhile; they allowed you to successfully lead your army to victory thousands of years ago. How can we as military Space professionals understand and apply your principles? We thought we would turn your principles into cool bumper stickers, then we could just grab one of your quotes and apply it to the situation we find ourselves in.

BG SUN TZU Let's get one thing straight right from the start. I do not organize my thoughts into systematic procedures that you can just pick up and follow. I am not giving you a concrete plan of action, but a series of recommendations that can be adapted to your circumstances. Let me give you an example that will help you understand where I am coming from. When you read a book, I am sure that you find it helpful to skim through the entire text to seek out the essential principles, extracting each one and generalizing, and then applying them to new situations. This can be an extremely powerful and efficient way to acquire and structure new knowledge. My philosophies are a loosely linked set of observations, not logical demonstrations. I teach by analogy and metaphor. You cannot simply pluck out my insights and drop them into your existing framework. You must develop new ways to use your mind.¹

ASJ There are a dozen translations of your work, with many different interpretations and descriptions of your chapters. The main connection in the literature among scholars who have attempted to review your work is that your 13 principles are powerful tools that can be applied to almost any situation, from the smallest engagement to the largest campaign. Would you briefly go through each one and highlight the significance of each?

BG SUN TZU Yes, I certainly have created a firestorm of reviewers who all have a different take on my work. Briefly,

there are 13 chapters and each is dedicated to a particular facet of warfare. Let us take a minute so I can review each one.

1. LAYING PLANS

There are five fundamental factors and seven elements that determine the outcomes of military engagements.

2. WAGING WAR

The cost of warfare and how to win decisively.

3. ATTACK BY STRATAGEM

The idea that the source of an army's strength is not in its size, but in its unity, as well as critical factors in achieving success in any conflict. Something you may want to pay special attention to today given the strategic and fiscal environment.

4. TACTICAL DISPOSITIONS

The defense of your tactical position and the importance of strategic opportunities.

5. ENERGY

The creativity and timing required to build momentum.

6. WEAK POINTS & STRONG

Opportunities caused by the weaknesses of your enemy.

7. MANEUVERING

The danger of direct conflict and how a commander can achieve victory through maneuver.

8. VARIATION IN TACTICS

The importance of flexibility and how to respond to changing circumstances.

9. THE ARMY ON THE MARCH

How to respond to tactical situations as you move through unfamiliar enemy territory.

10. TERRAIN

Advantages and disadvantages.

11. THE NINE SITUATIONS

The nine situations that you will face in a campaign and how a commander should approach them.

12. THE ATTACK BY FIRE

The use of weapons, targets of attack, and the responses to those attacks.

13. THE USE OF SPIES:

Information gathering and the five sources of intelligence.

ASJ Sir, now that you have succinctly summarized your principles, I believe I have a much better understanding of this masterwork on the conduct of war. If you had to pick one central theme, what would it be?

BG SUN TZU You are always looking for the simple answer. There is no sound bite that leads to a winner. Victory is not served in a McMinute in the comfort of your vehicle. Years and decades of proper planning, preparation, and patience will bear its fruit in season. I will tell you my central theme. The opening verse of my book is the basic cue to my philosophy. War is a grave concern of the state that must be thoroughly studied. Armed conflict is not a passing anomaly, but a continuing act worthy of detailed study. It therefore deserves thorough analysis on your part. Your moral strength and intellectual capability are decisive factors in war. If you apply them properly, you will be victorious. Professionals in the business of protecting the United States must take their obligation seriously and learn the craft of warfare. It is a matter of life or death, a road either to safety or to ruin. It is up to you which destination you will arrive at.²

Within this framework, my number-one theme is that you can avoid fighting when you plan the right strategy before the battle. War is to be preceded by measures designed to make it easy to win.³ If you have any doubts about this, my principles have been the foundation of Eastern strategy for thousands of years leading to many successful victories.

ASJ With all due respect, most Western strategists regard “On War” by Carl von Clausewitz as the best way to defeat our enemies. His theory concentrates on the big battle as the way to win. What do you have to say about this?

BG SUN TZU Look, Carl is a great strategist, but “On War” does not hold a candle to “The Art of War.” I wrote 13 chapters for the King of Wu, who was not easily impressed to say the least. He made me thoroughly test my ideas and afterwards made me a general. I subsequently led my army westward, crushed the Ch’u state, and entered Ying, the capital. And in the north I kept the Ch’I and Chin in awe. Moreover, Western commanders who happened to unwittingly use my principles in important campaigns over the past two centuries were successful, while commanders who did not apply them suffered defeat—sometime disastrous, war-losing calamities.

Carl’s main mantra is that war is merely a continuation of national policy, not an end in itself. The mistake he makes, however, is that his emphasis on total war and bloodshed undermines this theory. If war is indeed a continuation of policy, then the goal is the primary purpose. In emphasizing total victory, Clausewitz looked only at the end of the war, not the subsequent peace.⁴ In comparison, my principles are a masterpiece of simplicity. The well-known British strategist B.H. Liddel Hart, whose own philosophy affirms my emphasis on doing the unexpected and adopting the indirect approach in strategy,⁵ described me as “the most concentrated essence of wisdom on the conduct of war.”⁶ More to the point, he

stated that the clarity of my thought “could have corrected the obscurity of Clausewitz.”⁷ At the expense of sounding trite, I could have not said it any better.

ASJ Sir, that is quite enlightening. What you are saying is that Clausewitz was a believer in a direct approach, meaning that combat was everything in his mind. In contrast, it appears that you favor deception and an indirect approach. Would you elaborate and compare these principles to what we do in the Space business?

BG SUN TZU Look, if you believe that the United States will not encounter a peer force-on-force in the near future and that we will continue to face the asymmetrical threat we have been dealing with over the last decade, then yes, you will need to look beyond what Carl has to offer for relevant information. As I stated in the Art of War, the object of military action is not the complete destruction of your enemy’s army, their cities, or the depletion of their countryside, its victory. Plainly stated, I want to defeat my enemy without fighting so that we may live in peace. If this is not possible, I want to use deception and indirect means to bring about swift victory with the least amount of damage.⁸

Let me highlight a couple of my main elements from the Art of War that relate to deception and the indirect approach and place them in the context of Space operations. This answer will be the longest of all your questions.

In war, do not launch an ascending attack head-on against an enemy who holds the high ground. Do not engage him when he makes a descending attack from high ground. Lure him to level ground to do battle.⁹

First of all, Space power is a key ingredient for achieving operational environment superiority. Space is considered the ultimate high ground, and control of Space is critical to ensure availability of the capabilities it provides. For centuries commanders have fully understood the significance of the “high ground” in combat operations. A higher vantage point certainly offers both defensive and observational benefit to the forces who occupy it over their enemy.¹⁰ Moreover, Space capabilities provide many of the products and services Warfighters depend on. For example, satellite communications provide intratheater beyond line-of-sight and intertheater worldwide communications. Additionally, GPS provides position-location information and critical timing signals that support friendly situational awareness, precision fires, and unified action maneuver and collaboration. Moreover, a variety of satellite sensors (surveillance and reconnaissance and missile warning) provide the Army with critical surveillance information to answer commanders’ priority intelligence information requirements, provide indication and warning, and support strategic to tactical decision making. As I have said,

Know your enemy and know yourself; in a hundred battles you will never be in peril.

I cannot overemphasize the importance of knowing your enemy and gaining as much information as possible. This means learning your adversary's capabilities, potential, and intentions—digging down to the smallest detail. My last chapter was devoted to this very topic—the use of spies. In my time, we were limited to collecting information by direct human observation of the enemy and collecting information through the use of five types of agents: agents from the enemy's own country, enemy officials, enemy spies, my own spies who are sacrificed with false information, and spies who have returned with accurate information. The message to commanders was that, of all those who are close to you whom you rely on, the most valuable person in your command is the secret agent.¹¹ The knowledge you garner prior to any engagement is the key to defeating the enemy. You must fully understand the enemy; not from hearsay, analogy, or deliberations, but directly from those who know the enemy situation in every detail. In the 21st century, Space capabilities give us the ability to transfer, collect, and defend information as well as the ability to provide information on terrain, location, or activities of interest. Space capabilities also deny or degrade your enemy's ability to gain or acquire that information from Space.

All warfare is based on deception.

“If you are able, appear unable, if active, appear not active, if near, appear far, if far, appear near. If they have advantage, entice them; if they are confused, take them; if they are substantial, prepare for them; if they are strong, avoid them; if they are angry, disturb them; if they are humble, make them haughty; if they are relaxed, toil them; if they are united, separate them. Finally, attack where they are not prepared and go out to where they do not expect. This specialized warfare leads to victory, and may not be transmitted beforehand.”

Warfare is the art of deceit. Deception, in my opinion, is the most critical piece toward achieving victory over your enemy. I want to make the point of deception perfectly clear; all warfare is based on deception. A skilled leader

must master the disparate elements I stated a minute ago in order to confuse and delude the enemy while simultaneously concealing your true circumstances and ultimate intent.¹² My point is that you can achieve a competitive advantage by deceiving the enemy into believing that you are weaker or stronger than you actually are.¹³

Clearly deception has a role to play in the Space and, I might add, the Missile Defense arena. Your adversaries will use decoys to lead you astray, cause you to waste your assets, and lead you down paths toward destruction. Your own effective use of deception could mislead your enemy into believing incorrect information about the systems you have in Space or could put into Space. Even knowing that you have deployed decoys, the enemy could withhold action for fear that it is engaging a decoy.

Another deception tactic is the dispersal of your Space systems. Scattering satellites into various orbital altitudes and positions, as well as building “micro-sats” to collectively perform the functions of what larger and more vulnerable satellites perform, allows for added protection and increased survivability. Another example would be flooding satellite receivers with false communication links, making it extremely difficult for the enemy to separate critical communications from false traffic. There are many matters you could discuss here given the appropriate venue and a few creative minds.

ASJ Thank you, BG Sun Tzu, for taking the time to discuss the Art of War. I know we have only touched the surface of what your work has to offer us. Even though you wrote the Art of War thousands of years ago, it is fully apparent that your principles are as relevant today as they were in your time. Perhaps you would consider writing a 2012 edition to cover your thoughts more completely. As Space professionals, and more importantly as Soldiers, we must take our obligations seriously and study your masterwork of strategy in order to adequately plan for the future. Now please go back to your time; COL Coffin wants his office back.

Footnotes

- ¹ Sunzi, *The Art of War: Translation, Essays, and Commentary* by the Denma Translation Group (Boston: Shambhala Publications, 2009).
- ² Lawrence P. Phelps, “East Meets West: A Combined Approach to Studying Wars and Strategy in the 21st Century,” strategy research project, U.S. Army War College, 2006.
- ³ Ibid.
- ⁴ Bevin Alexander, *Sun Tzu at Gettysburg: Ancient Military Wisdom in the Modern World* (New York: W.W. Norton, 2011), pp. 1-4.
- ⁵ Gregory L Wilcoxon, “Sun Tzu: Theorist for the 21st Century,” strategy research project, U.S. Army War College, 2010.
- ⁶ Li-Sheng Arthur Kuo, “Sun Tzu’s War Theory in the Twenty First Century,” strategy research project, U.S. Army War College, 2007, pg. 4.
- ⁷ Ibid.
- ⁸ Wilcoxon.
- ⁹ Sun Tzu, *The Art of War*, Samuel B. Griffith, trans. (New York: Oxford Univ. Press, 1971) is the source of all quotations cited from *The Art of War*.
- ¹⁰ J. H. Huang, *Sun Tzu: The New Translation* (New York: Quill, 1993), pp. 74-79.
- ¹¹ Wilcoxon.
- ¹² Griffith.
- ¹³ Charles A. Rarick, “The ‘Other’ Art of War: Strategic Implications of Sun Pin’s Bing Fa,” *SAM Advanced Management Journal*, vol. 72, issue 4 (Autumn 2007), pg. 4.

RECOMMENDED READING

The Art of War by Sunzi (Lionel Giles, translator), <http://www.gutenberg.org/ebooks/132>
“Learning from Sun Tzu,” Douglas McCready, *Military Review*, May - June 2003
Understanding Sun Tzu on the Art of War, Robert L. Cantrell (Arlington, Va.: Center for Advantage, 2003)

BY LTC M. TROY BENTLEY

OUR HIGHEST

Satellite Launches Carry Names of Fallen Heroes



ABOVE A Minotaur-IV+ launch vehicle displaying a specially designed decal in honor of U.S. special operations personnel killed in action takes flight from the Kodiak Launch Complex in Alaska.

Photo by Office of Naval Research



LEFT A Minotaur-1 launch vehicle displaying a decal in honor of recent Medal of Honor recipients stands ready at the Mid-Atlantic Regional Spaceport on Wallops Island, Va.

Photo courtesy of Operationally Responsive Space Office



This decal honoring special operations personnel killed in an Afghanistan helicopter crash was displayed on a Minotaur-IV+ launch vehicle carrying the TacSat-4 spacecraft.

T DEDICATION

In the hush of morning twilight, a brilliant light and deafening roar shattered the tranquility of the Alaskan wilderness launch complex at Kodiak, Alaska. This was the scene of the Naval Research Laboratory's TacSat-4 launch on Sept. 27, 2011, and the second event dedicated to fallen American heroes by the Operationally Responsive Space (ORS) Office.

The Minotaur-IV+ launch vehicle displayed a specially designed decal in honor of U.S. special operations personnel killed in action. An earlier launch lauded recipients of the Medal of Honor.

On Aug. 6, Americans were shocked to hear of the single deadliest loss of U.S. forces in the decade-long war in Afghanistan. Thirty brave Americans, eight Afghans, and a military working dog perished in the crash of a CH-47 Chinook helicopter in Wardak province, Afghanistan. The tragedy was compounded by the fact that 22 of the dead were Naval Special Warfare Command Sailors (SEALs), including 15 SEALs who participated in the operation that killed Osama Bin Laden three months earlier. Other U.S. casualties were five Soldiers of the 135th and 158th Aviation regiments and three Airmen from Air Force Special Operations Command.

The TacSat-4 dedication also included having SEAL team members present for the launch. The launch vehicle decal listed the names of every American killed in the crash and even Bart the military working dog. To signify their bravery, silver wings are the most prominent part of the design. A purple heart enfolds the U.S. Special Operations Command spear tip, SEAL trident badge, Air Force Special Operations Command symbol, and 7th Battalion, 158th Aviation Regiment insignia.

ORS-1 Dedication

On June 29, the ORS office dedicated the launch of the ORS-1 satellite to honor the extraordinary courage and selflessness of Soldiers, Sailors, and Marines who received the Medal of Honor, the nation's highest award for valor, in Somalia, Iraq, and Afghanistan. The ORS-1 satellite blasted off atop a Minotaur 1 rocket from NASA's Wallops Flight Facility and Mid-Atlantic Regional Spaceport on Wallops Island, Va. ORS-1 is an electro-optical/infrared satellite employing a U-2 reconnaissance aircraft sensor package covering seven different wavelength bands. It is the first operational satellite launched by the ORS office.

About TacSat-4

The TacSat-4 mission will provide enhanced Space-based communication to U.S. forces in Afghanistan. The satellite's highly elliptical orbit brings it close enough for a service member using a handheld radio or pack radio to communicate effectively in the deep valleys of Afghanistan. It will also provide ten additional Ultra High Frequency channels and allow forces using existing radios to communicate on-the-move. Moreover, TacSat-4 provides flexible up and down channel assignments, which increase the ability to operate in busy radio-frequency environments and will cover the high latitudes and mountainous areas where users currently cannot easily access UHF satellite communications.

TacSat-4 will maintain a highly elliptical orbit of 435 miles by 7,470 miles at a 63.4-degree inclination. This unique flight path, three times closer to the Earth than most communications spacecraft, will enable TacSat-4 to provide four-hour coverage in the northern hemisphere during each of its six daily treks around the globe.



LTC M. TROY BENTLEY

is an aviation officer who became a Space Operations Officer in December 2010. He currently serves as the Tier-2 division chief in the Operationally Responsive Space Office. He has served as a National Police Transition Brigade team chief in Iraq and as a senior military adviser in Saudi Arabia, and worked for NASA at the Kennedy Space Center as an operations engineer, payload test director, and in program management.



Army Space Cadre News

Mike Connolly /// Section Coordinator



Mike Connolly is Director of the Army Space Personnel Development Office. He was an Army aviator and Space operations officer, with assignments to the Cheyenne Mountain Operations Center, U.S. Strategic Command, and U.S. Space Command.

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Continuing to Mature Focused on the Future

Reflecting on the year “that was” is something that many organizations and individuals realize this time of year. It gives us pause to acknowledge what was accomplished as well as consider goals and aspirations that were not fully accomplished. The Army Space Personnel Development Office (ASPDO) had many “can you believe this” moments in 2011.

To begin with, the ASPDO reorganized to more efficiently serve the Army’s Space community while preparing for the potential of doing more with less. The single military billet within the office was realigned from the Space Operations Professional Development Office to the Functional Area 40 (FA40) assignments manager at U.S. Army Human Resources Command. This move accomplished two specific objectives: It provided a valid/required billet for the assignments manager who had been carried as excess on manning documents, and it ensured a closer working relationship between the ASPDO and Human Resources Command. Additionally, the roles and functions of the Army Space Cadre Office (ASCO) were incorporated into the ASPDO. The mission of the ASCO

remains, however, this reorganization allows us to better handle routine actions along with a surge capability to pursue new initiatives. In addition to the changes to the ASPDO organizational structure, individual roles, responsibilities, functions, and job titles were appropriately adjusted. Finally, the ASPDO moved from its off-post office into Building 3 on Peterson Air Force Base.

On a larger scale, the ASPDO, specifically force manager Al Hughes, supported the Army's Officer Grade Plate (OGP) Roll Back, fighting hard to retain the existing FA40 billets throughout the force structure. Although a few organizations proposed the elimination or reduction in rank of their FA40s, the impact to the community is considered minimal. An interesting and ongoing dichotomy to the OGP is the number of Army and joint organizations that have asked for new or additional FA40s. This year FA40-coded billets were either established or formalized at the Navy Postgraduate School, Program Executive Office Space Systems (Mobile User Objective System), and the Executive Agent for Space. Additionally, a Training with Industry position was created at Analytical Graphics Inc.

The growth of officers designated as FA40 this past year has been as exciting as it has been challenging. Currently, there are more than 300 FA40s in the career field to fill some 210 coded-billets. Fully understanding that officers made conscious decisions to become Space operations officers, we have an obligation to provide them opportunities to develop the skills and attributes they require to succeed. The ASPDO found new and innovative ways to get this growing population, especially young captains, into rewarding positions where they can begin gaining valuable Space experience. The Joint Space Operations Center, Joint Functional Component Command for Space, Joint Navigation Warfare Center, and Defense Information Systems Agency all have agreed to accept additional FA40s. As we continue to grow, we are coordinating with additional organizations to establish positions where FA40s can serve.

Closely related to the development of operational positions for the community to

serve, is professional development through education and training. LTC Pat Marshall became the first FA40 to complete a PhD program and will not be the last. The six Advanced Civilian Schooling slots that are allocated to the functional area on an annual basis are becoming more and more competitive. Currently 14 officers are pursuing their advanced, Space-related degrees with six of those in accredited PhD programs.

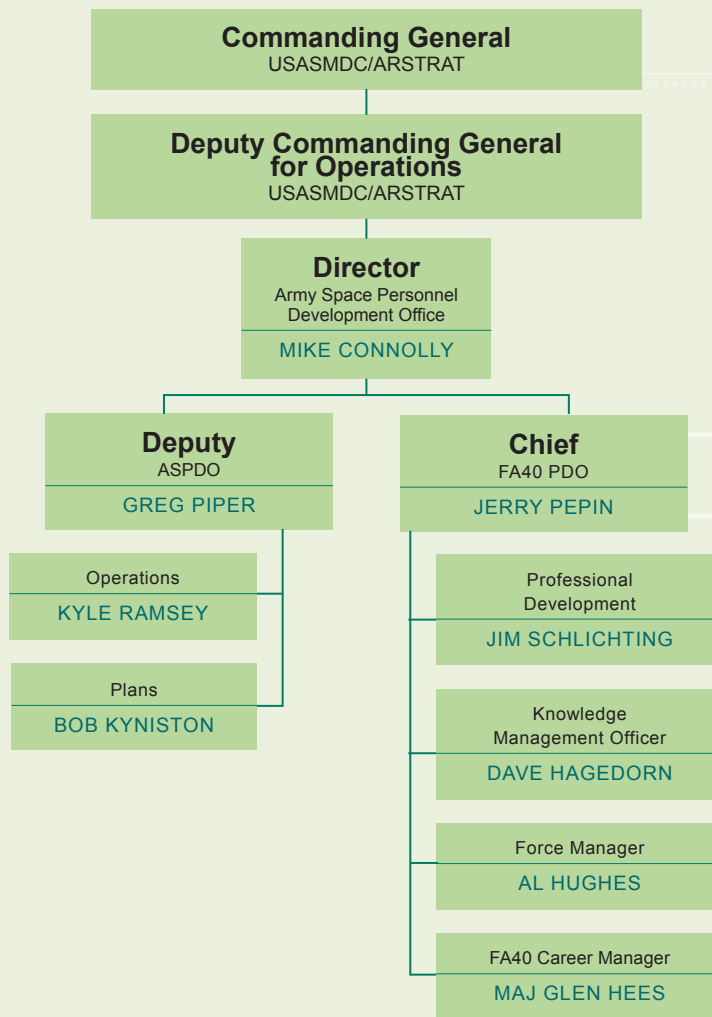
The ASPDO also assumed responsibility for scheduling personnel for the Army Space Cadre Basic Course, aligning this course in the same manner that Space 200 and Space 300 are managed. Jim Schlichting manages the registration for the basic course and oversees the Order of Merit List for both Space 200 and Space 300 for all Soldiers and Department of the Army Civilians who want to attend. In 2011 95 Soldiers and Civilians completed the Space Fundamentals Course, 127 completed the Space Cadre basic course, 112 graduated from Space 200, and 40 from Space 300.

In addition to classroom education, more than 200 individuals representing all uniformed components of the Army, Air Force, Civilians, and Department of Defense contractors attended the annual Army Space Cadre Symposium. This year's event was highlighted by the attendance of Richard McKinney, Deputy Under Secretary of the Air Force for Space, and LTG Richard P. Formica, commander of U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. Discussions and break-out sessions focused the attendees on the Army's 2011 theme, The Profession of Arms.

Adding to the growth and expansion of the Army's Space community, Bob Kyniston led the ASPDO effort to have the Air Force Space Badge recognized as a unique Army badge. This successful undertaking, approved by the Army Chief of Staff, provides the authorities for determining eligibility, criteria, and award to the commander, USASMDC/ARSTRAT. Additionally, the Army now grants ten promotion points to Soldiers who earn the Basic Space Badge. To date, more than 1,000 Soldiers have received some level of the Space Badge, including 300 processed in 2011 by Kyle

2012 OBJECTIVES

- Complete a Department of the Army-directed Space Cadre assessment
- Write the Army's portion of the biannual report to Congress on Department of Defense Space cadres
- Enhance the capabilities of ASKMS
- Plan and execute the annual Army Space Cadre Symposium
- Provide talent management for FA40s
- Develop additional opportunities for FA40s across the force structure
- Process Space Badge and 3Y requests
- Effectively utilize the Army's allocation of Space 200 and Space 300 slots
- Represent the Army Space community at appropriate meetings, conferences, and forums



Vision of the ASPDO

“To ensure a trained and ready Army Space Cadre.”

Each of us within the organization is committed to this vision and to all of the members of the Army Space Cadre. It is a pleasure to serve you, and we look forward to a great 2012.

Ramsey. A related acknowledgement of a Soldier’s Space experience is the awarding of the Additional Skill Identifier/Skill Identifier (ASI/SI) 3Y, Space Enabler. This past year 297 Soldiers, of all ranks and branches, were awarded the ASI/SI.

Ensuring that lines of communication remain open and available to all, the ASPDO is utilizing the Army Space Knowledge Management Site (ASKMS). Dave Hagedorn has worked extensively with internal and external organizations to develop a site that is user friendly and practicable. ASKMS provides worldwide, single-sign on capability to the entire Army Space Cadre on both the classified and unclassified sides of the network. Individual and organizational pages, Chatter, Announcements, Who Is Online, Space Links, Surveys, Feedback and Issues, Lessons Learned, Frequently Asked Questions, and Request for Information are current capabilities with many more under development.

The identification and coding of Space cadre billets is important to facilitate accu-

rate reporting of Army Space Cadre billet information and metrics to the Department of Defense and Congress. Efforts to identify positions for Space enabler designation and coding continue. Associated with the identification of billets is their proper coding. The ASPDO has coordinated with the Department of the Army for the use of remarks codes on organizational manning documents identifying Space cadre billets. A code of 64 identifies the billet as a Space professional, with 65 identifying a Space enabler.

As we put a close on 2011 and look forward to 2012, there is the likelihood of significant changes in the Army. A dramatic drop in promotion rates, possible reductions in force structure, and budget constraints all will contribute to making the next year interesting to say the least. However, the Army Space community can be assured that the Army Space Professional Development Office will continue to focus its efforts on providing education, training, and assignment opportunities for the Space cadre.

FA40 Career Management

Transparency in Assignments Part III

Special Assignment Considerations

Many factors play into the assignment process for Functional Area 40 Space Operations Officers. It is rarely as easy as taking the officer's preference and matching it up with a unit's preference to achieve the optimal assignment solution. There are essentially two categories of assignment considerations, regulated and unregulated.

REGULATED

This category covers all considerations that are governed by the Department of the Army in various forms. The most commonly addressed considerations during a permanent change of station cycle are Headquarters Department of the Army Manning Guidance (Needs of the Army), Functional Area 40 Priority of Fill, the Married Army Couples Program, Exceptional Family Member Program (EFMP), Nominative Billets, Time on Station, Schools, Retirements, Compassionate Reassignments, and High School Senior Stabilization. All of these are backed by regulations or other published guidance in order to ensure adequate diligence during the assignment process. These regulated considerations take precedence over any other consideration.

UNREGULATED

This category is comprised of all considerations that aren't covered by regulations. Some examples include personal preferences (to include geographic location and specific jobs), desiring to be closer to family, and any special need that doesn't

meet compassionate reassignment criteria. This category tends to have the majority of considerations when it comes time to submit preferences for a PCS. The unregulated considerations are also most often negated by needs of the Army and the FA40 Priority of Fill. In some rare cases, EFMP will prevent an assignment to a desired location. Additionally, officers wishing to go to a nominative billet can be denied by that gaining unit.

The important takeaway here is to ensure you make informed decisions when submitting your preferences for PCS. If you have a regulated consideration, coordinate with the assignment officer early in the process so it can be addressed. Do research on available FA40 billets and assess what you are missing as far as professional experience. As always, I encourage you to speak with the Army Space Cadre experts in the Army Space Personnel Development Office and e-mail or call the assignment officer for any professional development questions.

**Upcoming:
Part IV – The
Request for Orders
Process Explained**



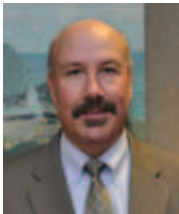
Section Coordinator

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Training Insights

Larry Mize /// Section Coordinator



Larry Mize is Chief of Space and Ground-based Midcourse Defense Education Training and the Deputy Directorate of Training and Doctrine. As a U.S. Navy officer, he specialized in naval intelligence, aircraft carrier operations, naval special warfare (SEALs), and Space operations, including assignments at U.S. Space Command and U.S. Strategic Command.

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DOTD the Year That Was



Doctrine, Collective Training, and Lessons Learned

By Don Messmer Jr. and Mark James

2011 was a dynamic year for Army doctrine that initiated widespread change affecting every Soldier, Civilian, and contractor within U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. The Doctrine, Collective Training, and Lessons Learned Branch of the Directorate of Training and Doctrine (DOTD) is the command's executor for these initiatives.

When he was Army Chief of Staff, GEN Martin Dempsey established the Mission Command Initiative which included the Doctrine 2015 Strategy (D2015) that stratifies Army doctrinal publications, gives identity to each doctrine category, reduces document length and number, and is enabled by mainstream publication media technology. Doctrine 2015 Strategy is designed to ensure doctrine is current, reduce doctrine development time, and keep pace with Army operations and the dynamic operational environments in which Soldiers fight.

The D2015 categories for doctrine are Army Doctrine Publications (ADPs), Army Doctrine Reference Publications (ADRP), Army Techniques Publications (ATPs), and the familiar field manuals (FMs). As illustrated in figure 1, the stratification easily identifies the level to which a specific doctrinal product applies. ADPs and ADRPs contain high-level conceptual principles that define the Army's operation. FMs are now largely focused at the proponent and operational level, whereas ATPs are focused at the brigade and below.

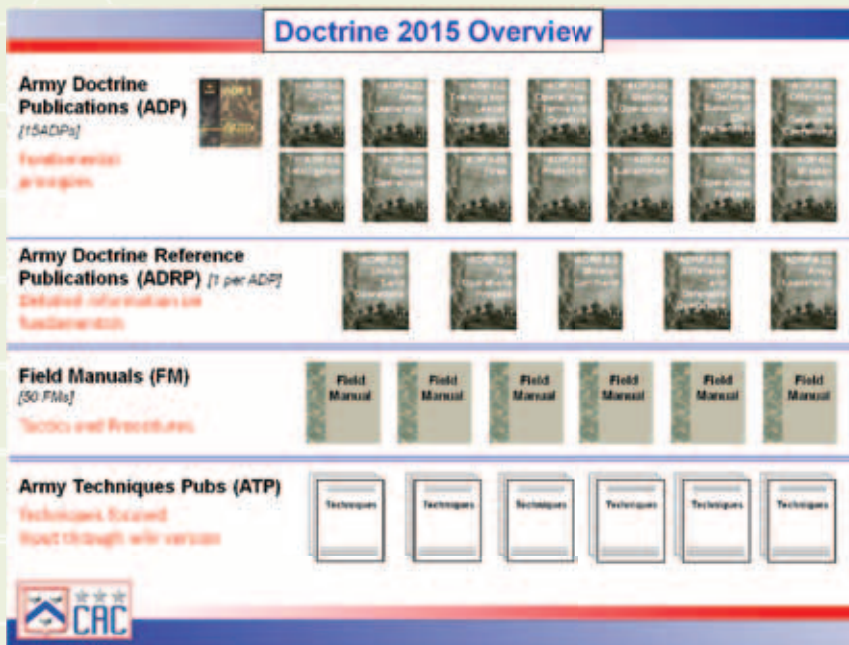


FIG 1.
Doctrines 2015 Stratification.

The fundamental principles that guide the actions of Army forces and explain how those principles support national objectives are embodied in the 15 capstone ADP documents. ADPs provide, in very concise language, the intellectual underpinnings of Army operational doctrine. Each of the 14 ADRPs corresponds to an ADP of the same name; there is no ADRP corresponding to ADP 1. ADRPs elaborate on the fundamental doctrinal principles described in corresponding ADPs. ADRPs do not discuss specific tactics, techniques, or procedures and are not longer than 100 pages.

Even though the familiar FMs are retained as a category, their quantity, content, and structure will change. U.S. Army Training and Doctrine Command has set the number of FMs not to exceed 50. FMs describe doctrinal tactics and procedures used by the Army to train for and conduct operations consistent with the principles described in ADPs and ADRPs. FMs will focus on functions in the main body but will not contain techniques as those are reserved for ATPs. FMs not included in the list of 50 will be restructured and published as ATPs, training circulars, or training manuals. USASMDC/ARSTRAT will retain FM 3-14, Space in Support of Army Operations, and FM 3-27, Army Global Ballistic Missile Defense Operations, and bring their structures into compliance with D2015.

Some of the most significant improvements include the publishing of ADP 3-0, Unified Land Operations, which superseded FM 3-0, Operations. ADP 3-0 introduces unified land operations as the Army's new operational concept that replaces full spectrum operations. FM 3-0 retitled the Command and Control warfighting function to the Mission Command warfighting function and replaced the term "command and control" with "mission command." FM 6-0, Mission Command, explains the principles of the mission command philosophy and warfighting function, and will eventually morph into ADP 6-0 and ADPR 6-0. Figure 2 shows the most recent updates to doctrinal terms; FM 6-0's preface has a

complete list of new, modified, and rescinded Army terms and rationale.

2011 was equally as busy for the Collective Training and Lessons Learned sections. The Collective Training section developed and finalized tasks for the 1st Space Brigade in support of Army Space Support Teams, Commercial Imagery Teams, Army Space Coordination Elements, Joint Tactical Ground Stations, and the 53rd Signal Battalion, 1st Space Brigade. The collective tasks were developed in the Training Development Capability (TDC) system and exported to the Digital Training Management System (DTMS). Space brigade units and deploying teams now can access their collective training tasks in DTMS from anywhere in the world. This process replaces the old method of using tasks from hard-copy Mission Training Plans that became quickly outdated. Collective Training members continue their efforts to develop and load the 100th Missile Defense Brigade supporting individual tasks into TDC. Prior to completing the collective tasks for the 1st Space Brigade, the section exported the 100th Missile Defense Brigade's collective tasks into DTMS.

The USASMDC/ARSTRAT Lessons Learned program office received a much-needed overhaul to reinvigorate it. In 2011 the office conducted redeployment debriefs and published 22 debrief and analysis reports on Army Space Support Teams, Commercial Imagery Teams, Army Space Coordination elements, Space Support Element teams, and the Deputy Director of Space Forces. The office is working diligently to get the reports out to all Soldiers, Civilians, and contractors. The Army Space Personnel Development Office is working to overcome some technical issues in the Army Space Knowledge Management System as the primary repository for all USASMDC/ARSTRAT lessons learned products. After those technical issues are resolved, Soldiers can access the products from NIPRNet and SIPRNet.



NEW TERMS	OBSOLETE TERMS
Range of Military Operations	Spectrum of Conflict & Operational Themes
Operational Environment	Battlespace
Unified Land Operations	Full Spectrum Operations
Defense Support of Civil Authorities DSCA	Civil Support
Mission Command	Command and Control and C2 ^{NOTE 1}
Intelligence, Surveillance, and Reconnaissance ISR	Reconnaissance and Surveillance
----	Battle Command
----	Campaign ^{NOTE 2}

NOTE 1 The function of command and the function of control are still valid, but not when combined into a single phrase or function.

NOTE 2 The Army does not conduct campaigns. Joint force headquarters plan and execute campaigns and major operations, while Service components of the joint force conduct major operations, battles, and engagements, not independent campaigns. **JP 5-0, PG II-22**

FIG 2.
New Army Doctrinal Terms.

Quality Assurance & Professional Development Support to Training

By Michael C. Madsen

Quality assurance and the professional development of the training cadre are key components to the conduct of USASMDC/ARSTRAT Space and Missile Defense Institute of Excellence institutional and qualification-level training for Army Space and Missile Defense forces deployed around the world. Of paramount importance to the training mission is adherence to the Training and Doctrine Command's (TRADOC) 48 accreditation standards for Army training. Executing this vital mission for DOTD is the Quality Assurance and Professional Development (QAPD) Branch.

Once every three years, TRADOC visits Army schoolhouses to ensure that Soldiers and Civilians are receiving quality training under the Army School System. DOTD has been inspected twice and has earned the "Institution of Excellence" rating, last awarded in 2009. The inspection team consists of five or six subject-matter experts in training and training development from Fort Eustis, Va., and Fort Leavenworth, Kans. The next accreditation visit is scheduled for November 2012.

Another responsibility of the QAPD branch is ensuring appropriate training and certification of DOTD instructional personnel. This involves managing the instruction of Systems Approach to Training-Basic Course and the Army's Basic Instructor Course. The QAPD branch also ensures DOTD personnel receive training on the new Army online training program, Training Development Capability, which recently replaced the Automated Systems Approach to Training program.

Record Setting Year for Space Training

By Daryl Breitbach

In 2011 the Army Space and Missile Defense Institute of Excellence's Space Training Division offered more courses and trained more Army Space Cadre members and others across the Department of Defense than in any previous year. The growth in courses and student instruction reflects USASMDC/ARSTRAT's efforts to meet the demands of a continually changing operational environment and the ever-increasing ways Space-based capabilities enable military operations.

Nearly 1,000 students attended an Army Space training course in 2011. Additionally, the DOTD staff provided Space training to another 1,100 external students, including the Command and General Staff College, Intermediate-Level Education satellite locations, Army Fires Center of Excellence, Army Intelligence Center of Excellence, and specific unit-level training sessions.

The year saw the first integration of Space Operations Software training on the Distributive Common Ground System-Army platform; a new course structure for the Tactical Space Operations Course and Satellite Communications Electromagnetic Interference Course; integration of new capabilities in the Joint Tactical Ground Station training; and increased training requirements for the Space Operations Officer Qualification Course, including research assignments and exams.

In 2011 the Army Space Council assigned USASMDC/ARSTRAT the task to execute an Army-level initiative to incorporate Space knowledge and leader development training into Army schools. DOTD and TRADOC will identify gaps in Space knowledge training at the Centers of Excellence and integrate Space knowledge training into existing lessons and school curricula.

Missile Defense Training Division

By Clem Morris

The past 12 months have been busy but exciting for the instructors in the Missile Defense Training Division. The division's two branches, Ground-based Midcourse Defense and Sensor Management, increased Soldier training throughput by more than 35 percent. The Sensor Management Branch conducted 11 Sensor Manager Qualification Courses (SMQC), training some 200 Soldiers to support new deployments of the AN/TPY-2 radar. Additionally, the Sensor Manager Leader Development Course was created to instruct the senior operational leadership and develop critical thinkers who create techniques, tactics, and procedures for their operational units. The course also provides leaders with important skills to operate, integrate, and manage Missile Defense operations for the radar system. Five courses were delivered for the year.

Other significant activities include the award of an Additional Skill Identifier (ASI) for SMQC graduates. The ASI is critical in aiding planners and other leaders in determining the training requirements for Soldiers who deploy in support of the radar and identify Soldiers who have been trained on this unique operations weapon system. Past graduates of the SMQC can contact the Sensor Management Branch education technician to receive or inquire about course credit and receipt of the ASI. The Army Space Personnel Development Office is completing the process for sensor manager positions to be designated as Space Cadre billets.

The branch recently opened a new classroom complete with an eight-crew training laboratory which replicates a real-world operations center with dedicated Command, Control, Battle Management, and Communications system workstations. The lab utilizes the latest technology available in Missile Defense mission command applications. It will better enable instructors and students to "train as you fight" in a realistic learning environment.

A lot of progress has been made within the Ground-based Midcourse Defense (GMD) Branch as well. The organization accepted responsibility for the GMD Operator Course as of Dec. 1, 2011. The instructors are hard at work bringing the courseware materials up-to-date and in compliance with TRADOC standards. The instructors also augment mobile training teams to train Soldiers at Fort Sill, Okla., and Fort Rucker, Ala. Twelve mobile courses were provided, educating more than 400 Soldiers. The Command Launch Equipment Course is under development, for implementation by next fall. Finally, in order to professionally develop GMD operators throughout their careers and identify those individuals who will serve as "master gunners," the Master Gunner Program was established. It consists of four courses, culminating in a Master Gunner Board where participants will compete in an oral selection committee. Courses include the Training Management, Advanced Operations, and Leader Development sessions. Individuals can take one or all of these courses throughout their career to meet the organization's requirements.

In support of the Ballistic Missile Defense System (BMDS) asset management process and a demand for training Warfighters on these important activities, the division developed the BMDS Asset Management Course. There were seven courses with 81 graduates in 2011. In compliance with the Army's Learning Concept for 2015, an effort to maximize online teaching is in place. In a collaborative effort with the Missile Defense Agency, the GMD branch has developed online instruction. This step will reduce classroom discussion on this topic and focus on hands-on training.

Training Support Division

By Chip Graves

At the beginning of fiscal year 2011, DOTD took a bold move to change the contract vehicle for its contractor employees. In partnership with the Contracting and Acquisition Management Office-West, the contract vehicle changed from a firm fixed price to a cost plus contract. Savings from this move are about \$1 million. The Training Support Division also converted 14 out of 15 contract positions to Department of the Army Civilian positions, resulting in a savings of \$1.5 million.

Next, the Training Support Division managed and coordinated the overall program for the Command Inspection Program (CIP). The CIP consists of nine major areas and 50 sub-areas. DOTD ensured the primary and alternate action officers had the correct checklists and points of contact for their respected areas. The Training Support Division was successful in passing all areas of responsibility on the fiscal year 2011 CIP.

DOTD completed construction on two classrooms at Building 20K. These classrooms will facilitate a permanent residence area to deliver the Sensor Manager Qualification Course and the Distributed Common Ground System-Space Operations System training. By providing the instructors with a permanent space, there have been vast improvements in the following areas:

- Saves approximately one day's worth of work per course transporting, setting up, and tearing down the classroom.
- Training aids are more realistic as they do not need to be made for easy transportation.
- Permanent classrooms become known within the community; avoids having students show up at the wrong location.

Lastly, the Training Support Division initiated a building concept project to consolidate all Space and Missile Defense classes into one location. This building will provide classrooms, labs, and inside and outside training for all Space and Missile Defense courses taught by the Space and Missile Defense Institute of Excellence for Education and Training



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FEATURES



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IN FIRST PERSON

John W. Davis
Counter
Intelligence
Staff Officer, G2
Huntsville, Ala.

ROME FADED AS

ETHICS DIED

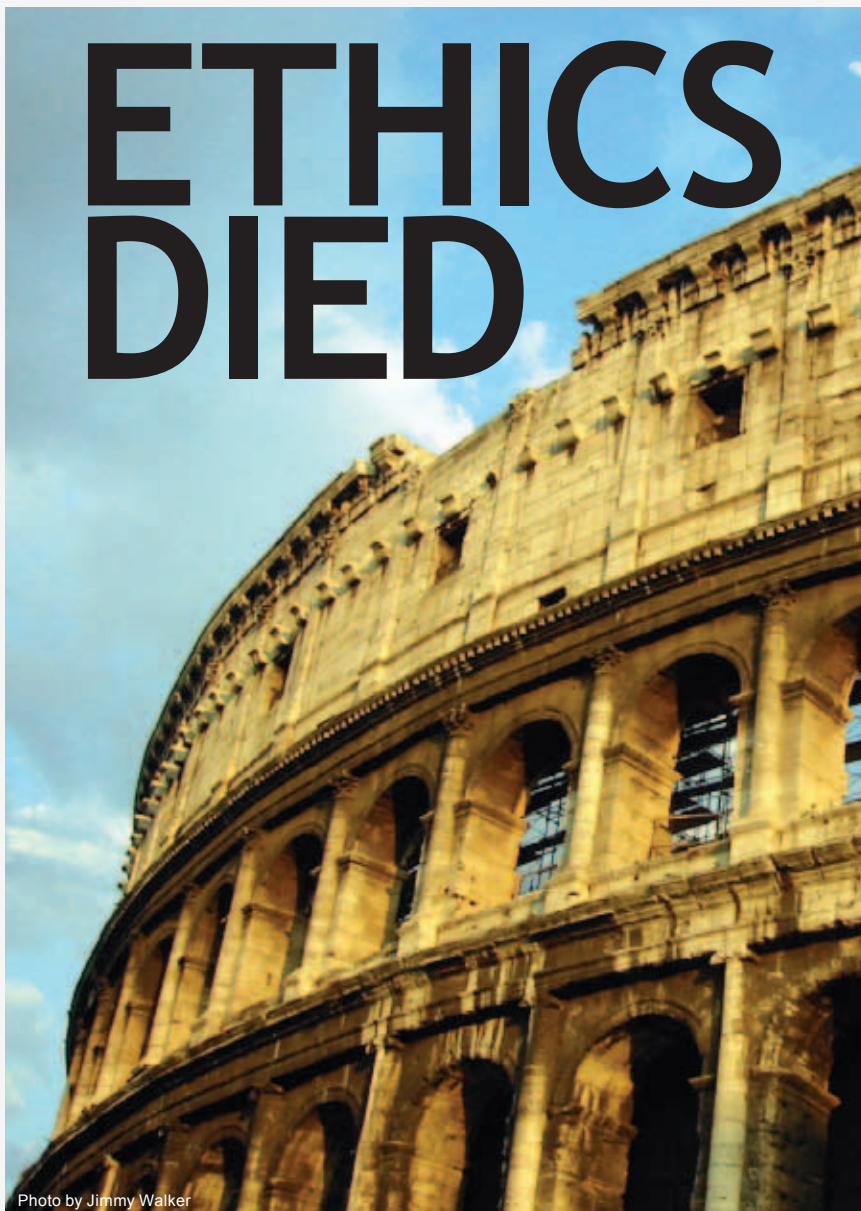


Photo by Jimmy Walker

24F

How did Rome, which once civilized the Earth, come to such an end?

All speak today of ethics as we do of heaven, as something desirable, but not something real or tangible. We would do well to reconsider. I speak of how ethics determine our fate. The fate of a great empire haunted me when I reflected recently on the ancient Romans. I imagine they, too, believed themselves invincible, but their choices taught them a bitter lesson.

I could not help but be awestruck by the titanic Roman Colosseum. A brooding stone hulk, it dominates the Roman horizon. It is a wonder even today, almost 2,000 years after its construction. A visitor would do well to pause here, at this vast, dead ruin, and consider the end of societies.

We hear much said today about ethics. Ethics in warfare is offered at the U.S. Military Academy at West Point. Scandals remove not only teachers, ministers, and captains of industry, but also government and contracting officials as well.

Questionable ethics are pervasive. American civil servants must sign ethics statements; one's word is no longer a bond. We yearn for a remedy, yet the fabric of our nation continues to unravel. Why? Such thoughts crossed my mind as I looked out over the Colosseum's broken chambers, which once held fierce animals and their human victims.

How did Rome, which once civilized the Earth, come to such an end? That whole society, represented by this giant edifice, is gone. I wondered why.

The Roman society that spread throughout the world idealized character.

It valued and practiced virtues known even then as peculiar to Rome.

In an essay written about 98 B.C., a Palestinian Jew honored Roman virtues:

"Romans were brave, loyal to their allies, forthright, and without deception. Roman justice was clear and swift. Yet with all this, none of them wore purple or put on a crown as a display of grandeur. They made themselves a Senate house ... deliberating on all that concerned the people and their well being ... and there was no envy or jealousy among them."

Thus a foreigner described republican Rome.

It was a coherent society. Each citizen was honor-bound to do his duties of public service and civil defense. Each tried to behave in the Roman character: to strive for the ideal of the pragmatic, fair, and well-balanced citizen. Cincinnatus, a farmer, was called to join his fellow citizens as a soldier to defend Rome from invasion. He left his plow, served and returned, his duty done. The American Minutemen of our Revolutionary War used him as their model of the citizen-soldier. Paul of

Tarsus, a Roman citizen, demanded his right to Roman justice in preference to the arbitrariness of other lands. There was no need to teach a Roman duty, honor, and country, for such ethical concepts were his everyday life. It was when these common beliefs failed that Rome did, too.

Two Roman legions were annihilated to a man by barbarians in distant, trackless Teutoberg Forest, in what is now Germany. With this disaster, a germ of trouble began. Truths, which inspired Romans to act beyond the call of duty itself, began to fade. Service to the country was no longer considered necessary for pampered, wealthy Roman youths. Rather, the army came to consist of hired foreigners, who worked for pay, not the service of Rome. Virtues that once bound society together became laughable to cynical politicians and profane writers. Even the republic disappeared, and decadent emperors appeared. Virtue was no longer pursued. In its place was substituted the pursuit of pleasure.

The Colosseum was built to satisfy demands for ever more bizarre entertainment. When blood spectacles of gladiators and mass combat no longer thrilled, beasts devouring humans did. Soon, decadent, jaded Romans demanded more. Young slaves were drowned in an artificial lake. Performers were murdered by surprise as they acted. Even whole populations of defenseless Christians and Jews were massacred by perverse methods of crucifixion to amuse Rome. Romans could no longer be shocked.

Salvian, a wise observer, mourned the death of the old ways as he said of his countrymen: "(S)omething still remained to them of their property, but nothing of their character. They reclined at feasts, forgetful of their honor, forgetting justice, forgetting their faith and the name they bore. If my human frailty permitted, I should wish to shout beyond my strength, to make my voice ring through the whole world:

"Be ashamed, ye Roman people everywhere, be ashamed of the lives you lead. Let no one think or persuade himself otherwise—it is our vicious lives alone that have conquered us."

The Colosseum, that vast memorial to folly, stands forever so that what brought Rome down can never be hidden. It proves that a good society survives only by seeking a higher ethic.

Where once Rome was a model of virtue that the world admired, it had become a culture of death. In the quiet of the great Colosseum, I could imagine the whisper of Fate warning us today.



SIGNAL SENIOR ENLISTED LEADERSHIP SEEK SPACE SOLDIERS' INPUT

Story & Photos by DJ Montoya,
1st Space Brigade Public Affairs

PETERSON AIR FORCE BASE, Colo.—The senior enlisted leader of the Army Signal Corps turned for advice to the Soldier “signaliers” of the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command during a visit Oct. 24-26.

CSM Ron Pflieger, regimental command sergeant major for the U.S. Army Signal Center of Excellence at Fort Gordon, Ga., spoke to Soldiers of the 53rd Signal Battalion, 1st Space Brigade in Colorado Springs.

At the time, Pflieger had been on the job only 90 days and already was making changes. “We are taking the Signal Corps in a different direction,” he stated.

“When you look across at what the Army asks the Signal Corps to do right now, based on our strength, the way our equipment is laid out, and the way we are designed, we can only support 34 percent of that requirement. In anybody’s eyes that is a non-starter.”

The answer, according to Pflieger, is micro-cyber. “Basically this is a re-look as to how we want to train, procure, and use equipment. You have got to give us some feedback. We don’t want to change the Signal Corps in a vacuum. We need ideas from you guys out there in the field.”

Accompanying Pflieger were CSM Gerald Williams of 9th Signal Command (Army), U.S. Army Network Enterprise Technology Command, and SGM Nathaniel Hatchett from the 15th Regimental Signal Brigade at Fort Gordon.

The visit, sponsored by the 1st Space Brigade, covered briefs and tours of USASMDC/ARSTRAT’s Directorate of

Training and Doctrine and the 1st Space Brigade. The highlight of the visit was a luncheon and meeting with Soldiers at the Peterson Club.

Williams addressed the Soldiers by adding, “You as Soldiers (signaliers) represent every member of your regiment, and you need to be the best damn Soldier that they have ever seen. I challenge each and every one of you not to ‘drag your duffle bag’ as you go through the required series of training and certifications in your field. The things you do in Space impact the freedoms that we share each and every day as American citizens.

“Our Army is downsizing; you all know that. But I will tell you your mission here in Army Space and Missile Defense Command is increasing tremendously. So never take light of what you bring to the table as an individual.

“Nothing that they do here in SMDC/ARSTRAT can be successful if they cannot connect to the network. They can talk about us, but they cannot talk without us. And you guys are the backbone to allow the mission of SMDC/ARSTRAT to be successful.”

After the group departed, CSM Marcus Campbell from the 53rd Signal Battalion reflected on the visit. “The Soldiers of this command are charged with an awesome responsibility. It was good to see the senior enlisted leadership of the Space and Missile Defense Command and the Signal Corps work together to enhance our ability to train the Soldiers of the 1st Space Brigade.”

STED INPUT



FAR LEFT Senior Signal Corps enlisted members address U.S. Army Space and Missile Defense Command/ Army Forces Strategic Command Soldiers on upcoming changes in the Signal Corps and the vital role they bring to the Army's Space mission.

RIGHT CSM Gerald Williams from 9th Signal Command (Army), Network Enterprise Technology Command, urges 53rd Signal Battalion Soldiers to set the standard for the regiment they represent.

BOTTOM CSM Ron Pflieger, regimental command sergeant major, U.S. Army Signal Center of Excellence, gives the low-down on changes coming in the Signal Corps to Soldiers of the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Soldiers on Oct. 25.



Kwajalein residents (from left) Cynthia Rivera, Ray Drefus, and Connie Greene pay their respects during the national anthem Nov. 11 at the U.S. Army Kwajalein Atoll Veterans Day ceremony.



KWAJALEIN CEREMONY

Honors Multinational Service

Story and photo by Sheila Gideon, USAKA/RTS Public Affairs

U.S. ARMY KWAJALEIN ATOLL, Republic of the Marshall Islands—Living on an island where a battle was fought and lives were sacrificed makes Veterans Day on Kwajalein quite special. It is a time to remember and honor veterans, past and present, who have and continue to sacrifice in service to the United States.

At U.S. Army Kwajalein Atoll's ceremony Nov. 11, MAJ Stephen Parrish welcomed veterans and distinguished guests. He briefly spoke of how Veterans Day originally was coined Armistice Day, marking the date World War I ended. It was changed in 1954 to honor veterans of all wars.

Acting commander LTC Christopher Mills said, "Today is the day that gives us time to remember all veterans that have served, who we can thank for the current freedoms we continue to celebrate today. It's not just U.S. citizens who place their lives on the line for our country; we as Soldiers have the privilege to serve alongside soldiers of many other nations as well. Among our audience are Families of U.S. service members from the Marshall Islands who place themselves in harm's way in defense of our country. We are honored to have you here today." Mills then introduced Martha Campbell, the U.S. ambassador to the Marshall Islands.

"I am very proud and honored to be speaking to you today," Campbell said, "particularly on this auspicious Veterans Day, 11-11-11."

Campbell noted that Veterans Day is celebrated not on the anniversary of a great battle,

but when war ended and peace was restored. She said it was hard to imagine on such a beautiful day what Kwajalein must have been like in January 1944, during the bombardment of Kwajalein and Roi-Namur by land, air, and sea. At the end of Operation Flintlock, 500 U.S. forces had lost their lives.

"Since the liberation of the Marshall Islands, this country has continued a special and unique relationship with the United States," Campbell said. "The people of the Marshall Islands have contributed to U.S. military efforts and global security in many ways."

Alex Burnley, Thomas Greene, Hannah Finley, and Isaiah Parrish, members of Kwajalein Boy and Girl Scout troops, came forward to hand off the wreaths for the Laying of Wreaths ceremony. The ceremony honors fallen comrades, those who answered their nation's call and literally gave all. Campbell and Mills joined Lisa Marks of American Legion Post 44 and Amy LaCost, representing the post's auxiliary, to place wreaths at the base of the Operation Flintlock memorial and in front of the U.S. national colors, the colors of the Republic of the Marshall Islands, and the 2nd Raider Battalion memorial.

Parrish finished the ceremony asking everyone to "humbly thank our veterans for answering the call to duty, especially those who fought and died here in the Marshall Islands. Let us never forget."

The American Legion Post 44 rifle squad fired a three-volley salute on the hill while high school senior Alex Shotts played "Taps."

VETERANS HOW



ALABAMA PARADE

Inspires with Red, White, and Blue

LTG Richard P. Formica, commanding general, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, thanks participants for being in the Veterans Day parade Nov. 11 in Huntsville, Ala.

Photo by Dottie White

By Kari Hawkins, Redstone Rocket, and Dottie White, USASMDC/ARSTRAT Public Affairs

HUNTSVILLE, Ala.—LTG Richard Formica didn't stay on the reviewing stand for very long.

As soon as the color guard leading the Veterans Day parade began its march in front of the reviewing stand, Formica jumped down from his designated spot as the parade reviewing officer so he could be up front and center.

For the next two hours, he waved, encouraged, saluted, and expressed his sheer delight to the event's participants, saying "Thank you for being in the parade!" "Thank you for your service!" and "Thanks for sharing your Soldier with us!" When it was possible, he even shook hands and gave hugs.

It was a rare expression from a three-star general, but one that everyone enjoyed. "It's good to honor those who honor us," said Formica, commander of U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. "These people took the time to come honor our veterans. The least I can do is greet them and recognize their contributions."

The general's excitement never waned, even though he was charged with reviewing more than 150 entries and 500 individual pieces. As bands, military hardware, Scout troops, Junior ROTC units, Cahaba Shriners, antique car owners, and many other entries passed by, Formica made sure they knew he appreciated their effort.

"This is unbelievable," Formica said of his first Huntsville Veterans Day parade. "This is a noble and enthusiastic tribute to our veterans, to those who serve and who have served. This was

huge, and it was well-attended and truly honored our veterans."

Veterans Day committee chairman Joe Fitzgerald was impressed with the turnout for the parade. There was a fear that a three-day weekend would find many people out of town. But just the reverse happened, with thousands of spectators flooding downtown Huntsville for the parade.

A new Huntsville-Madison County Veterans Memorial was dedicated prior to the parade in downtown Huntsville's Veterans Park. USASMDC/ARSTRAT leadership and employees participated in the opening ceremony and ribbon cutting.

Formica gave remarks during the ceremony, stating the memorial is "a fitting tribute to our veterans, who are visible reminders in our communities of duty, sacrifice, patriotism, and our nation's enduring commitment to its values." He and CSM Larry Turner also helped cut the ribbon.

The memorial displays the names of 367 local veterans who made the ultimate sacrifice. More than 500 people attended the dedication ceremony.

"It's terrific. It brings tears to your eyes," Korean War veteran Jerry Tepper said as he visited the memorial.

Tepper and his wife, Barbara, a Marshall Space Flight Center contractor, attend the Veterans Day parade every year. This year they came early for the memorial dedication.

"I'm a veteran, and I want to be part of this," said Tepper, who has to use a wheelchair to get around. "It's a beautiful day for a patriotic parade. The day has been beautiful and inspiring."

VETERANS HONORED

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COLORADO PARADE Inspires with the Flight of the Flags

“ Our forward deployed and forward positioned Soldiers were not able to march down the parade route, but believe me when I share that they were with us in spirit, and appreciated by those in attendance. It is an honor to lead such a patriot formation as we marched downtown, but is a much greater honor for a commander to be included in such a magnificent formation of heroes.”

— COL Eric P. Henderson

ABOVE Prior to the start of the 2011 Colorado Springs Veterans Day parade, Cub Scouts sought out every military formation marching and passed out “Thank You for Your Service” cards. TOP RIGHT SFC Christopher Knoth joined a group of Air Force Personnel from Peterson and Schriever Air Force Bases in making up the Flight of the Flags. The theme for this year’s parade was Pearl Harbor - 70 years in Remembrance. BOTTOM RIGHT COL Eric P. Henderson, commander of the 1st Space Brigade, leads members of the Flight of Flags down Tejon Street as CSM Thomas Eagan, also from the 1st Space Brigade, keeps step with flag bearers. The group was composed of service members from the Army’s only Space brigade, Peterson Air Force Base, Schriever Air Force Base, and Fort Carson.

Photos by DJ Montoya



Gen. Gary L. North, commander, Pacific Air Forces, serves a Thanksgiving meal to members of Charlie Detachment, 1st Space Company at the Ginko Tree Dining facility on Osan Air Base, Korea.

GIVING THANKS OVERSEAS



Story and photo By Rachel L. Griffith, USASMDC/ARSTRAT Public Affairs

OSAN AIR BASE, Korea—The Joint Tactical Ground Station at Osan Air Base, Korea, Charlie Detachment, 1st Space Company, runs a 24-hour-a-day operation. Its in-theater early missile warning support mission never stops, even on Thanksgiving Day.

Usually the holidays are a time when airports are crowded so people can fly home to spend time with their families. This Thanksgiving the leadership team from the detachment's parent unit boarded a plane and came more than 5,000 miles to spend the holiday with Soldiers overseas. COL Eric P. Henderson, 1st Space Brigade commander, and CSM Thomas L. Eagan, brigade command sergeant major, flew in to enjoy a tradition known to many of those who wear the uniform, a holiday meal eaten in the local dining facility.

"I relish the opportunity to be in the company of Soldiers, particularly those Soldiers who more often than not are far away from their family during the holidays," said Henderson. "I want them to understand that they are appreciated by every level of this command, and that due to their diligence and vigilance, thousands of their fellow service members can enjoy their holiday in safety and security because the Soldiers of JTAGS are on watch."

The leadership team sat down for a Thanksgiving meal with more than two dozen detachment members.

The meal is the first holiday Eagan has spent with Soldiers of the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command since he joined the command in August.

"There is no greater honor than spending the holiday in the company of Soldiers," Eagan said. "Coming here was the right thing to do, and there was nowhere else I would rather spend this Thanksgiving. These Soldiers work long hours to accomplish their mission. Coming here is just a small token of our appreciation for their selfless service and their commitment to the Army Values."

The mission at JTAGS is an important one and one that never rests. A trained and ready crew is always on watch.

"We are on a 24-hour-a-day mission here in Korea," said SPC Brandon Schoen, JTAGS operator. "We help provide the overall picture to the lower echelons in theater and make sure they are protected on a 24-hour basis against any incoming missiles, and of course working with elements in the contiguous United States."

While making personal sacrifices is nothing new as a Soldier—one of the Army Values is Selfless Service—the dedication level of these Soldiers doesn't go unnoticed by their leaders.

"It's really motivating to the Soldiers to see their leadership giving up their holiday and time with their families, to fly overseas to spend the time with them," said SFC Christopher L. Barber, C detachment non-commissioned officer in charge. "The Soldiers get a sense of how important their mission is over here, and it re-energizes them. We have a tough mission, and we work a lot of long hours. A visit like this, especially on a holiday, will keep these Soldiers motivated to continue to serve."

PASSING AUTHORITY

Missile Defense Brigade Appoints New First Sergeant

By SGT Benjamin Crane, 100th Missile Defense Brigade Public Affairs

COLORADO SPRINGS, Colo.—The senior noncommissioned officers of the 100th Missile Defense Brigade passed the sword to a new enlisted leader during a Change of Responsibility ceremony Oct. 18.

MSG Robert Cunningham was appointed to first sergeant before he was passed the sword signifying his new responsibility as the first sergeant of the 100th brigade.

“I’d like to first express my humble gratitude for being given the opportunity to serve you as your new first sergeant,” said Cunningham. “It will be my passion to ensure all Soldiers will receive quality leadership, training, and mentorship within all levels of the brigade.”

Passing the responsibility to him was 1SG William Ray, who served as first sergeant for four years and will be moving into the unit’s operations section.

“When you’re a first sergeant, you guys are my children. I worry about you, I try to do everything I can to make you succeed,” said Ray, addressing the brigade.

During the ceremony, the leaders spoke to Soldiers about the work they have done as a unit and how all leaders will do their part to make sure the transition is smooth.

CPT William Shanahan, the Headquarters and Headquarters Battery commander, talked about the impact Ray made on him over the last four years and his contributions.

“I can honestly say that he made every decision with the best interest of the battery in mind and always thought about the battery first,” said Shanahan.

“He’s taught me a lot, and I’ll miss him.”

Shanahan also advised the noncommissioned officers to heed Ray’s example.

“NCOs, I would encourage you to follow his example and always think of what’s best for the battery, the unit, or the Army,” he said.

But as one man leaves his leadership role, the next one has to keep it going. Cunningham laid out his plans and expectations while addressing his new charges.

“I will provide the total success through NCODP (noncommissioned officers development program) and all categories of training,” he said. “I expect NCOs to be the example, know their Soldiers, and train them. Do what is expected as a leader, to include implied tasks. I expect all Soldiers to live the Army Values and the Warrior Ethos and to instill them in your subordinates and peers alike.”

Cunningham also challenged leaders to take care of the brigade as a whole, not as individuals, and to take the Army Values to heart. He closed with a message for the Soldiers to take home with them.

“I realize there are many expectations in place, set and improved by the previous leadership,” Cunningham said. “I hope to meet and exceed those expectations. Once again, I would like to thank those in attendance for your service to this great nation and the opportunity to serve you. Go home and thank your Families. For they are the backbone of the Soldiers, as NCOs are the backbone of the Army.”



CPT William Shanahan, Headquarters and Headquarters Battery commander, 100th Missile Defense Brigade right, promotes 1SG Robert Cunningham during the Change of Responsibility ceremony. Photo by SSG Clay Mullins, 100th Missile Defense Brigade



CSM Russell Hamilton of the 100th Missile Defense Brigade shakes 1SG William Ray's hand and shares a word of congratulations for a job well done after the brigade's Change of Responsibility ceremony. 1SG Robert Cunningham succeeded Ray during the ceremony. Photo by SSG Clay Mullins, 100th Missile Defense Brigade



NANOSATELLITE MARKS ARMY'S RETURN TO SPACE

By John Cummings, USASMDC/ARSTRAT Public Affairs

REDSTONE ARSENAL, Ala.—The first U.S. Army-built satellite in more than 50 years completed its mission in mid-January 2011 as it succumbed to the Earth's gravity and burned up during reentry.

The Space and Missile Defense Command-Operational Nanosatellite Effect (SMDC-ONE) was launched Dec. 8, 2010, as a secondary payload on a Falcon 9 two-stage booster, a Space Exploration Technologies, or SpaceX, launch vehicle. The U.S. Army Space and Missile Defense Command/Army Forces Strategic Command is the Army lead for the SMDC-ONE nanosatellite program.

SMDC-ONE remained in orbit 35 days, slightly beyond the original projection of 26 to 34 days. It provided a large amount of data to review and build upon for the Army nanosatellite program.

"This satellite has wildly exceeded my expectations," said John London, nanosatellite technology

manager at the USASMDC/ARSTRAT Technology Center in Huntsville, Ala. "We achieved our mission goals and began achieving our 'stretch' goals for the flight."

The primary objective of the maiden flight was over-the-horizon communications between unattended ground sensors. The data was from sensors identical to what U.S. Soldiers currently use.

With ground stations a straight-line distance of more than 1,000 miles apart in Huntsville and Colorado Springs, Colo., the satellite made multiple passes over each ground station daily. Most of the passes were useful and allowed for the transfer of text and image files.

The SMDC-ONE nanosatellite is approximately 10 inches long and consists of three, three-inch cubes weighing about 10 pounds.

The first Army-built satellite in more than 50 years, the SMDC-ONE nanosatellite, is launched aboard the SpaceX Falcon 9. Photo courtesy of collectSPACE

ARMY SPACE TEAM GUIDES MARINES IN AFGHAN PROJECT



Story and Photo by DJ Montoya, 1st Space Brigade Public Affairs

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PETERSON AIR FORCE BASE, Colo.—Soldiers from the 117th Space Battalion (Colorado Army National Guard), 1st Space Brigade, were recognized for their contributions to a Marine Corps development project in Afghanistan during a welcome-home ceremony Aug. 19.

MAJ Brad E. Rhodes, 1LT Steven B. Dunlap, SSG Timothy F. Kretsch, SPC Annie M. Acrea, SPC Johnathon D. Nunnali, and SPC Nathaniel D. Rogers are members of Army Space Support Team 22. They served in Afghanistan from November 2010 to August 2011.

LTC Jesse Morehouse, commander of the 117th Space Battalion, gave an example of the team's importance during its deployment.

"The Marines actually had a canal that they were paying to have built," said Morehouse. "They needed to inspect the work to make sure it was getting done to standard. Problem was sending out a group to inspect the canal was difficult and dangerous because of the bad guys on the ground."

Realizing the problem, the Army Space team educated the Marines on the fact they could get satellite images of the work from above and monitor progress without ever having to stand on the ground.

"It turns out taking picture from Space of a canal many miles long, you get a better feel for what has actually been done than standing on the ground

next to a pile of dirt," Morehouse said. "They kept Soldiers from unnecessarily going into harm's way. This is one of the many things they did during their tour in-theater."

COL Eric P. Henderson, commander of the 1st Space Brigade, thanked the team by saying, "Major Rhodes, I'm proud of you for bringing your team home safely. The contributions your team has made, the products you have produced, the lives you have changed, not just for yourselves but for the people of Afghanistan and our coalition partners who stand shoulder to shoulder with us, reflect greatly on this command and the U.S. Army."

Rhodes relinquished the coin given to him for safekeeping in November 2010 back to the brigade commander. In a unit tradition, deployed Army Space support teams carry a coin with them for their entire tour, then return it for display in brigade headquarters.

Henderson presented each team member with the Army Commendation Medal for a job well done.

Army space support teams provide Space-based products and capabilities to Warfighters on the ground. The mission of the 117th Space Battalion is to plan, coordinate, integrate, synchronize, and execute global Space force enhancement operations and assigned state requirements in support of Army, joint, and combined forces and civil authorities.

COL Eric P. Henderson left receives the 1st Space Brigade mission coin from Army Space Support Team 22 leader MAJ Brad Rhodes, who kept the coin during a nine-month deployment in Afghanistan.

10 OCTOBER

LASER TEST FACILITY CHANGES HANDS

The U.S. Army Test and Evaluation Command took charge of the High Energy Laser Systems Test Facility at White Sands Missile Range, N.M., operated since 1990 by the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. The transfer is an effort to reduce overall overhead for Army laser test facilities while continuing to support customers. Programs conducted at the facility include the Tactical High Energy Laser program, Mobile Tactical High Energy Laser program, tracking and interception of rocket, artillery, and mortar projectiles in flight, and using a low-powered chemical laser to acquire and track a satellite. USASMDC/ARSTRAT will continue to conduct testing there, including the High Energy Laser Technology Demonstrator and Solid State Laser Testbed Experiment.

3,260 military and
Civilian students educated
in Space & Missile Defense



11 NOVEMBER

ARMY LAUNCHES ADVANCED HYPERSONIC WEAPON DEMONSTRATOR

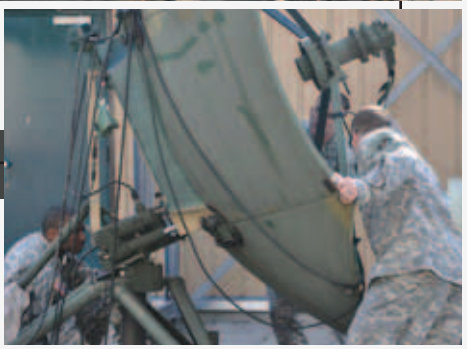


In an event which lasted less than 30 minutes, USASMDC/ARSTRAT conducted the first test flight of the Advanced Hypersonic Weapon. The AHW, a first-of-its-kind glide vehicle designed to fly within the Earth's atmosphere at hypersonic speed and long range, was launched from the Pacific Missile Range Facility, Kauai, Hawaii, to U.S. Army Kwajalein Atoll, Marshall Islands. The Advanced Hypersonic Weapon Technology Demonstration is a cooperative effort within the Department of Defense to develop a conventional Prompt Global Strike capability. The program will advance state-of-the-art thermal protection materials, controls and communications, and internal thermal management schemes. In-flight environmental data collection will aid the understanding and modeling efforts for all Prompt Global Strike concepts, such as the Air Force's Conventional Strike Missile. Hypersonic flight is speeds of about 3,600 mph or higher.



1.5 Million

Friendly Force Tracking reports received



MEDICAL VOLUNTEERS BRING THINGS INTO FOCUS ON KWAJALEIN

Story and Photo by Ruth M. Quigley, USAKA/RTS Public Affairs

U.S. ARMY KWAJALEIN ATOLL, Republic of the Marshall Islands — Helping the blind see was just one goal for a team of volunteer medical professionals who spent two weeks working on Ebeye island.

Canvasback Ministries, a nonprofit organization, has worked in the Marshall Islands since 1986. In October 2011 it sent experts in ophthalmology, optometry, dermatology, and dentistry to Ebeye and Ennibur.

The team saw more than 600 patients, performed some 200 surgeries, and donated services worth \$600,000. Volunteers donate their time and pay for their air tickets to Kwajalein.

U.S. Army Kwajalein Atoll's Host Nation Activities Office coordinated some of the team's logistical support and facilitated entry requirements and paperwork.

"The work that Canvasback does helps to facilitate relations [between the U.S. and] the Marshall Islands," said Bill White, a USAKA liaison specialist.

Jacque Spence, who founded Canvasback with her husband, Jamie appreciates the help provided by USAKA and the community on Kwajalein.

"What Kwajalein people do for us really makes this mission possible," Spence said.

Many of the operations performed were eye surgeries. Patients who were diagnosed with cataracts had the cloudy lens removed and replaced with a lens implant, with the goal of restoring vision



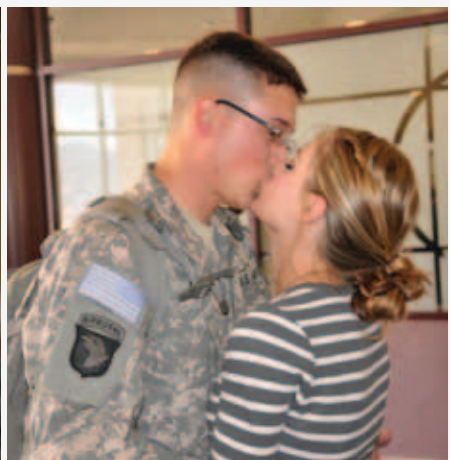
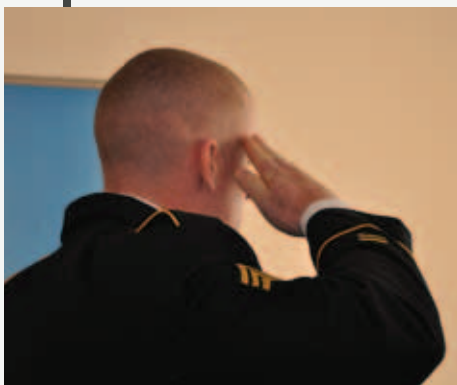
to as close to 20/20 as possible. Patients also were fitted for prescription or reading glasses. Other patients were treated for skin conditions or dental problems.

Some of the patients have not been able to see for years, and according to Spence, witnessing them discover sight all over again is one of the greatest rewards.

"They were blind and now they see," exclaimed Joy Glynn, referring to the fact that many patients were considered legally blind due to cataracts. Glynn, a Kwajalein resident, volunteered to work with the group after meeting Jacque Spence while scuba diving.

Dr. David Gano, an ophthalmologist with Canvasback Ministries, performs a follow-up exam with Bantol Pendinin at Ebeye Hospital in the Marshall Islands, after cataract surgery which restored Pendinin's vision. A group of volunteer medical professionals treated hundreds of patients in the Marshall Islands last October.

10F



12

Army Space Support Teams, Commercial Imagery Teams, & Army Space Coordination Elements deployed or returned

216,000

Commercial Imagery products processed



05 MAY

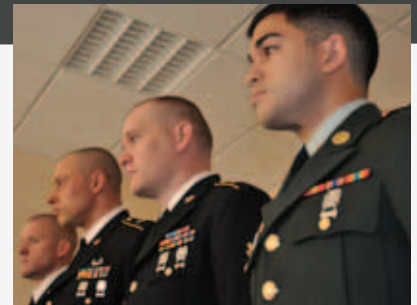
BRAVO COMPANY WINS SUPPLY EXCELLENCE AWARD

Bravo Company, 53rd Signal Battalion, 1st Space Brigade received an Army Supply Excellence Award for 2010 during the annual Army Chief of Staff's Combined Logistics Excellence competition. SGT Precious L. Knight, company supply sergeant, accepted the award in the category for active-duty small units under the Modified Table of Organization and Equipment from SMA Raymond F. Chandler III at a ceremony in Richmond, Va. The Supply Excellence Award recognizes excellence in supply operations. Its objectives are to enhance logistics readiness of all Army units, enforce the Command Supply Discipline Program, and provide a structure for official recognition of group and individual initiatives.

08 AUGUST

49TH BATTALION MARKSMEN COMPETE AT REGIONAL LEVEL

Soldiers from the 49th Missile Defense Battalion, 100th Missile Defense Brigade, at Fort Greely, Alaska, tested their marksmanship capabilities at the MAC Region 6 Combat Marksmanship Competition in Wyoming. After placing in the top five at state-level competition, SSG Jason Martin and SGT Albis Gomez teamed up with SGT Derick Butler and alternates SFC Kevin Mcgaha and SGT William Velez for the regional competition. The Marksmanship Advisory Council hosts regional competitions to enhance marksmanship proficiency and battle focus weapons training among Soldiers and Airmen in the National Guard. At the state match Martin, Gomez, and Butler were the top three dominating scores in their class for rifle and pistol. They next competed against Guard and Air Guard members from Alaska, Idaho, Montana, North and South Dakota, Oregon, Washington, and Wyoming.



2011 RAISES THE BAR

IN SPACE & MISSILE DEFENSE



This section is based on articles and photos by SGT Benjamin Crane, Jason Cutshaw, Craig Denton, Rachel L. Griffith, MAJ Laura Kenney, DJ Montoya, CPT Erol Munir, Deborah Ward, and Dottie White.

01 JANUARY

MISSILE DEFENDER OF THE YEAR

The Missile Defense Advocacy Alliance honored MAJ Michael Toby of the 100th Missile Defense Brigade as Missile Defender of the Year from the Army National Guard. The ceremony recognized Soldiers, Airmen, Sailors, and National Guardsmen who, according to their peers and commanders, have contributed greatly to the field of Missile Defense. Winners are considered to represent the best in leadership and personal effort and to have demonstrated their commitment to excellence. Toby, the brigade's assistant operations officer, received the award from BG Kurt Story, deputy commanding general for operations of U.S. Army Space and Missile Defense Command/Army Forces Strategic Command.



02 FEBRUARY

SPACE BADGE RECOGNIZES WARRIORS OF THE HIGH GROUND

Army Chief of Staff GEN George Casey approved the establishment of the Space Badge. The badge is awarded to active Army, Army Reserve, and National Guard Soldiers who complete appropriate Space-related training and attain the required Army Space Cadre experience. The badge has three levels: basic, senior, and master. For active duty Soldiers, the Basic Space Badge is awarded after 12 months, the Senior badge after 48 months, and the Master badge after 84 months. For Reserve and National Guard Soldiers, the Basic badge is awarded after 24 months, the Senior badge after 60 months, and the Master badge after 96 months.



04 APRIL

COMMAND AIDS COMMUNITIES AFTER TORNADOS

Employees of the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command in Huntsville, Ala., and Colorado Springs, Colo., joined forces to help residents devastated by deadly tornadoes that struck northern Alabama. Soldiers and Civilians contributed some \$6,000 to aid families, moved household goods for temporary storage, cut fallen trees, and provided minor damage repair. The command's Future Warfare Center supplied commercial satellite imagery to local, state, and federal emergency management agencies, mapping out known damaged areas and projecting a likely tornado path. This eliminated a large search area to the south with little or no damage, allowing the emergency agencies to devote their time and resources to the worst-hit areas.



03 MARCH

JAPANESE DISASTER TOUCHES SPACE WARRIORS

In response to a devastating earthquake and tsunami in Japan, Soldiers of Delta Detachment, 1st Space Company, 1st Space Brigade provided more than 400 hours of volunteer cleanup work. Joint Tactical Ground Station personnel also conducted a tactical vehicle convoy to a town 150 miles away to deliver vital supplies to U.S. Agency for International Development search and rescue teams. The Geospatial Intelligence Division at Peterson Air Force Base, Colo., used satellite imagery and special exploitation techniques to provide products to U.S. Pacific Command on the damage to the Fukushima nuclear power site and its continued impacts and determine that a berthing area near the plant was clear of debris, allowing for the entrance of U.S. Navy ships and equipment the next day.



Day one of the competition put the competitors through an Army Physical Fitness Test, portions of the Army Physical Readiness Test, and tested their ability to lead a calisthenics routine.



Day three put the participants through familiarization and refresher training to prepare them for the field training and mystery event portions of the competition. Competitors also completed day and night land navigation challenges.

The day also marked the first time a Secretary of the Army has attended the Best Warrior event. John C. McHugh, along with Chandler, visited as the 26 Soldiers and NCOs were familiarizing themselves with weapons to be used later.

"I think it's absolutely essential that all the leadership, both uniformed as well as civilian, has a chance to get out here and see the Soldiers in action," said McHugh.

He spoke with the competitors' sponsors, who were there to provide support and guidance to their respective competitors. After McHugh's remarks about the direction the Army will go in the future, the sponsors asked questions of McHugh and Chandler. Brown's sponsor, SFC Jared English of the 1st Space Battalion, asked the leaders about Force Shaping and how it may affect Soldiers like himself.

"To be able to meet the Secretary of the Army is a huge honor and something very few people, very few Soldiers, for that matter, actually get to do," English said. "He's the top guy in the Army, and everything goes through him. To be able to get first-hand knowledge from him and to find out what the Army is working on for the future really was an amazing opportunity."

Kitchen's sponsor, SSG Christopher Miller of the 53rd Signal Battalion, asked about the implementation of the Army Physical Readiness Test and if it would affect current height and weight standards.

Chandler handled that one, stating that the new test was still under review and that Soldiers can expect much stricter height and weight standards in the coming months.

"It's a once in a lifetime opportunity," Miller said. "I can't say I thought I'd ever get the chance to talk to the Secretary of the Army, much less ask him a question that's been on my mind, in such a small group forum."

After the question and answer session McHugh and Chandler visited several training stations to speak with the competitors. At the Mission Oriented Protective Posture familiarization station focusing on protective gear used during a chemical, biological, radiological, or nuclear attack, Chandler selected Brown to speak to McHugh about his experience in the competition.

"It's such an honor to be here to represent the Soldiers from Space and Missile Defense Command," Brown told McHugh.

Day four began with a large-scale mass casualty exercise. Afterwards the competitors were assigned a fire team to join them throughout the day in tests at the Military Operations; on Urban Terrain site. The day concluded with day and night live-fire ranges.

"It's my last year so I'm definitely going to light up their world with the night fire range. I'm ramping things up this year for sure," said CSM C. C. Jenkins Jr., Fort Lee's command sergeant major, who oversaw the events.

The mystery event began with artillery fire and a mass casualty evaluation and included another stress fire lane, an additional escalation of force test, and a uniform inspection.

The final event of the competition was a non-evaluated combatives tournament.

"I'm extremely proud of how both competitors performed and represented the command," said CSM Larry S. Turner, USASMD/ARSTRAT's senior enlisted Soldier.

The winners were announced during the Best Warrior Awards Luncheon at the Association of the United States Army annual meeting and symposium. The 2011 NCO of the Year is SGT Guy Mellor, representing the Army National Guard and 1st Battalion, 145th Field Artillery, Utah National Guard. The Soldier of the Year is SPC Thomas Hauser, representing Forces Command and the 563rd Military Police Company, 10th Mountain Division.



SGT Brandon A. Kitchen prepares to enter the MOUT site with his fires team during the surprise event.



7F

The Best Warrior Competition began in 2002 under the direction of SMA Jack Tilley as a three-day event. Tilley wanted to create a standards-based competition open to all Soldiers that recognized the “total Soldier concept.” The competition was also meant to show the American public “just how good we are in the Army.”

The competition since has evolved into a five-day event that requires Soldiers to perform individual warrior tasks and battle drills, as well as leading a team of Soldiers. Each subsequent Sergeant Major of the Army has put his own touch on the competition. In 2007, then-SMA Kenneth O. Preston directed organizers to better reflect the operational environments of Iraq and Afghanistan in the competition.

Warriors selected to vie for the prestigious titles have mastered a series of benchmarks throughout the year to qualify for the Army-

wide Best Warrior Competition. Competitors for Soldier of the Year include the ranks of private through specialist, and competitors for NCO of the Year include corporal through sergeant first class. All active duty, Army National Guard, and Army Reserve Soldiers are eligible.

Participants in the 2011 event came from Forces Command, Training and Doctrine Command, U.S. Army Europe, Army Materiel Command, Eighth Army, Medical Command, Army Pacific Command, Space and Missile Defense Command/Army Forces Strategic Command, Army Special Operations Command, Army Reserve Command, Army National Guard, and the National Capitol Region, which includes several smaller commands.




SFC BROWN

COM
2011
ARMY **BE**

4F



SGT KITCHEN



SFC Andrew B. Brown observes the gathering crowd during the Military Operations in Urban Terrain site exercise during the surprise event.

SGT Brandon Kitchen briefs his fire team before heading into the Improvised Explosive Device lanes.

USASMDC/ARSTRAT'S TOP NCO & SOLDIER

COMPETE FOR BEST WARRIOR

Story and Photos by Rachel L. Griffith, USASMDC/ARSTRAT Public Affairs

FORT LEE, Va. — In October the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command sent its top two Warriors to Fort Lee, Va., to compete in the Department of the Army Best Warrior Competition, hosted by SMA Raymond F. Chandler III.

SFC Andrew B. Brown (then a staff sergeant) and SGT Brandon Kitchen were selected to represent USASMDC/ARSTRAT after winning a competition last summer against peers from all other Space and Missile Defense units, which tested many areas of being a Soldier.

Brown and Kitchen joined 12 other noncommissioned officers and 12 Soldiers who were chosen as top performers from commands around the Army for the five-day competition.

“It’s good to compete against them, learn from them, and develop camaraderie with them,” Brown said.

Brown is stationed in Colorado Springs with the

1st Space Battalion, 1st Space Brigade, and is a Joint Tactical Ground Station training and evaluations noncommissioned officer in charge. Kitchen, a Colorado Springs native, is stationed at Fort Meade, Md., with the brigade’s 53rd Signal Battalion, where he is a satellite communications operator.

Day one put the competitors through a physical fitness test and a written exam and tested their ability to lead a platoon of Soldiers through a calisthenics routine. They also took part in portions of the new Army Physical Readiness Test, although that portion was not graded.

On day two the 13 NCOs and 13 Soldiers appeared in front of Command Sergeants Major boards to examine their knowledge in military leadership, current affairs, survival, and other focus areas. Competitors were evaluated on their answers, their uniform appearance, and how they conducted themselves in front of some of the Army’s senior enlisted leaders.



100th Missile Defense Brigade

COL
Gregory S.
Bowen

Commander
100th Missile
Defense Brigade



Looking Back at 2011

This was another year of growth for the Ground-Based Midcourse Defense system, as we continue to improve our ability to protect the nation from ballistic missile threats. Much of the system infrastructure is now in place; construction of the new power plant and Missile Field 2 at Fort Greely, Alaska, is substantially complete. These two projects are the last major construction planned for the Fort Greely Missile Defense Complex, so the complex's configuration should be stable for at least the next several years.

While our infrastructure growth in Alaska has slowed, we have had some big changes in our radars. In addition to Detachment 10 in Shariki, Japan, we are in the process of deploying two more AN/TPY-2 radar systems. The Detachment 11 radar is on the ground in Turkey as part of the European Phased Adaptive Approach, and the Detachment 12 radar will go into U.S. Central Command later this year. Several more AN/TPY-2 radars are planned for the next few years, and we are currently training the sensor managers who will monitor these systems and the maintainers who will keep them running. Once these systems are all emplaced and operating, the sun will never set on the 100th Missile Defense Brigade.

In addition to the AN/TPY-2s, the Early Warning Radar in Thule, Greenland, has been upgraded and is now part of our architecture, significantly increasing our ability to defend against threats from Southeast Asia. Additionally, the Sea-Based X-Band radar, another critical missile defense sensor, has been formally turned over to the U.S. Navy and is operating in the Pacific.

As we all know, a major disaster struck our Japanese allies last year with the earthquake and resulting tsunami. The Detachment 10 Soldiers located in Shariki were severely challenged to maintain radar operations in the aftermath of the disaster. Power was interrupted, communications were disrupted, and there was an extreme shortage of fuel, so keeping the generators that power the radar running was a challenge. Detachment 10 Soldiers also provided humanitarian support to the local towns of Miyako and Noda, collecting and delivering water, clothing, shelters, and personal items.

2011 saw a significant increase in our direct interaction with U.S. Navy Aegis ships. The brigade now conducts regularly scheduled missile defense and data link exercises with the ships in the Pacific Fleet, to include supporting their pre-deployment training. The communication and coordination between the brigade fire control nodes and our naval brethren has become seamless.

Two combatant commanders were among the dignitaries who visited Fort Greely. Gen. C. Robert Kehler (U.S. Strategic Command) and GEN Charles H. Jacoby Jr. (North American Aerospace Defense Command and U.S. Northern Command) visited the 49th Missile Defense Battalion, as well as numerous other military and congressional distinguished visitors.

The threat continued to evolve over the past year. We have seen significant ballistic missile developments in both North Korea and Iran. In North Korea, the death of Kim Jong-il and the rise of his son Kim Jong-un to power add to the uncertainty. Regardless of what the future holds, the Soldiers of the 100th stand ready to protect the homeland.

COL
BOWEN

“None
Shall
Pass.”



CSM
Russell A.
Hamilton

100th Missile
Defense Brigade

'The 300' Finish Strong

The business of defending America against an intercontinental ballistic missile threat is a 24/7/365 task. Therefore, as expected, it has been a busy year for the Soldiers of the 100th Missile Defense Brigade (Ground-based Midcourse Defense). Aside from the day-to-day rigors of continuous operations on the GMD Fire Control System and securing the missile defense complex at Fort Greely, Alaska, these professional warriors strived for continued excellence during multiple Operational Readiness Evaluation certifications, force protection external evaluations, and Tier I exercises in support of U.S. Northern Command and U.S. Strategic Command.

The Soldiers of the 100th also sought opportunities to go above and beyond whenever the situation dictated, while maintaining their focus on missile defense tasks. In March 2011, Soldiers from the 10th Missile Defense Detachment at Shariki, Japan, were pressed into action to help provide local community support in the aftermath of the earthquake, tsunami, and nuclear catastrophe that devastated parts of Japan. Detachment Soldiers (along with warriors from the Misawa-based Joint Tactical Ground Station detachment of the 1st Space Brigade) took action to assist the people of Japan, while maintaining mission capability in the process.

2011 also marked significant achievements and recognitions for individual Soldiers of the brigade. Among them, LTC Michael Tobey (Headquarters and Headquarters Battery) was recognized by the Missile Defense Advocacy Alliance (MDAA) as its Missile Defender of the Year for the Army National Guard. CPT Kirby Atwell (commander, 10th Missile Defense Detachment) was selected by MDAA as a Missile Defender of the Quarter for the actions he led in Shariki during the disaster relief efforts. SGT Benjamin Maye (Headquarters and Headquarters Battery) competed in Best Warrior competitions for USASMDC/ARSTRAT and the Colorado Army

National Guard. He placed second overall in the Colorado Army National Guard competition.

Our warriors of the 49th Missile Defense Battalion, located at the "forward edge of freedom" in the great State of Alaska, had yet another outstanding year. SPC Ernesto Ventura and SGT Christopher Thomas participated in the Alaska Army National Guard's Best Warrior competition, with SPC Ventura winning the Soldier category and SGT Thomas placing as the first runner-up in the NCO category. SPC Richard Prestwich won the Soldier category for the USASMDC/ARSTRAT Western Region Best Warrior competition for the fourth quarter and will compete in the command's overall competition this coming spring. The 49th has worked to further strengthen its relationship with the local community of Delta Junction by competing in (and winning) the second annual battalion vs. Delta Junction High School floor hockey tournament and fundraiser. The event was a great success and raised more than \$2,000 for the local community.

The brigade experienced growth and change. The 11th Missile Defense Detachment was activated in the U.S. European Command area of responsibility, and the activation of the 12th Missile Defense Detachment is in progress for support of U.S. Central Command. These radar detachments add robustness to our system and provide a capability to the geographic combatant commanders that previously did not exist.

The changes to the brigade's structure and the actions and efforts of its Soldiers highlight the continuing evolution of an organization that celebrated its eighth year of service. Many challenges have been conquered in those eight years. To be certain, the year ahead will be no less challenging. However, the roughly 300 professional Soldiers of this brigade will continue to face these challenges head-on as they stand ready to defend 300 million Americans 24/7/365.

CSM
HAMILTON

3F

**"Guard,
Engage,
Destroy!"**



1st Space Brigade

COL
Eric P.
Henderson

Commander
1st Space Brigade



2011... "By the Numbers"

“Exercise one, conditioning drill one is the side straddle hop! The side straddle hop is a four-count exercise.” I remember many years ago learning how to do physical training and how to lead PT. This was a very important aspect to the Army for Cadet Henderson. “By the numbers” was a phrase to explain “step by step” how we do things. Later, as a lieutenant colonel, I participated in a promotion board where we were instructed to “look at the numbers” as a quantitative method of measuring an officer’s performance. As I reflect upon this past year’s activities within the 1st Space Brigade, here are some numbers to share with you.

On the mission side, three Army Space Support Teams, two Commercial Imagery Teams, and one Army Space Coordination Element deployed in-theater. Three ARSSTs, two CITs, and one ASCE came home after successful missions providing the right products to the right “customer” at the right time. The 53rd Signal Battalion relocated Delta Company from California to Wahiawa, Hawaii, standing up the Army’s first Wideband Satellite Communications Operations Center and integrating five members of the Australian Defense Forces into its operations without blinking an eye. At the same time it continued to oversee the construction of another WSOC at Fort Detrick, Md. 1st Space Battalion Space teams participated in combatant command exercises in Japan, Korea, Germany, and Australia as well as mission rehearsal exercises inside the contiguous United States. 2011 marked the first deployment of a Space situational awareness system outside the United States in support of a combatant commander since the establishment of the brigade.

On the kudos side 13 Soldiers were inducted into the Sergeant Audie Murphy Club. CPT Tilisha

Lockley from the 53rd and CPT Christy Orser from the brigade’s Headquarters and Headquarters Company received MacArthur Leadership Awards. Orser also garnered a Congressional Fellowship. SSG Paul Martin from the 1st Space Battalion earned the title of Distinguished Honor graduate with an overall GPA of 96.89 from the 25S Senior Leaders Course. SSG Benjamin Sharp proved an Army Soldier doing a Space mission could win the title of Outstanding Enlisted in Category Two during the annual Pikes Peak Region Armed Forces Day Luncheon.

When the going got tough, the brigade got going. After the March earthquake and tsunami that caused widespread damage in Japan, volunteers from Delta Detachment at Misawa Air Base conducted a tactical vehicle convoy to deliver vital supplies to search and rescue teams, all the while performing their strategic missile warning mission. Joint Tactical Ground Station Japan conducted 400 hours of clean-up missions. When Typhoon Songda destroyed the Auxiliary Satellite Control Terminal on Okinawa, Echo Company, 53rd battalion, developed and led a joint, multi-agency effort to mitigate the operational impact by deploying tactical Marine Corps satellite terminals to perform the strategic mission until the Army unit was repaired.

Generosity and community involvement were not lost on the brigade’s people in 2011. For the second year the brigade assisted its sister service, U.S. Air Force, by leading and marching in the Flight of Flags entry during the Colorado Springs Veterans Day parade. The brigade also extended its community involvement across the globe. An example can be seen in the participation of 37 Soldiers and Family members and four volunteers—all from Charlie Company,

COL HENDERSON

C1

53rd—in the U.S. Army Garrison Kaiserslautern Red-Ribbon Run/Walk designed to raise drug and alcohol abuse awareness. Ten Soldiers from Echo Company volunteered at the Kadena Special Olympics in Okinawa, Japan. Closer to home, Bravo Company participated in the Honor Flight Network, meeting World War II veterans at the Baltimore-Washington International Airport and escorting them to the nation's capital to view the WW II memorial. Finally, HHC, 53rd, volunteered at the Marion House Soup

Kitchen in Colorado Springs, preparing and serving meals to 180 needy families.

As 2012 begins, it is important that we “take a look at the numbers.” Quantitative, hard facts highlight some of the many successes the 1st Space Brigade has enjoyed through the hard work and dedication of its Soldiers, Civilians, and contractors. When it comes to accomplishments and achieved milestones, the numbers never lie. We look forward to the future and the way ahead for the world's only (“One”) Space brigade.

“There is Only 1 Space Brigade.”



CSM Thomas L. Eagan

1st Space Brigade

An Amazing Year

The 1st Space Brigade underwent a lot of changes in 2011. From moving into a new building, to my placement as the new Command Sergeant Major of the unit, it's been a busy year. Just from my short time with the brigade, I am amazed at the accomplishments of our Soldiers.

Let's begin with two outstanding Soldiers who represented the command as a whole at the Department of the Army Best Warrior Competition. Both Soldiers came out of the 1st Space Brigade. The command's Noncommissioned Officer of the Year, SFC Andrew Brown from the 1st Space Battalion, and Soldier of the Year, SGT Brandon Kitchen from the 53rd Signal Battalion, showed dedication, courage, and continual displays of excellence while representing not only the brigade but also the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. I am extremely proud of both of these Soldiers.

Our Soldiers continue to impress me with their commitment to living the Army Values, especially when it comes to selfless service. In Misawa, Japan, Delta Detachment, 1st Space Company, stepped up when disaster struck. Under the leadership of CPT Erol Munir and SFC Marcus Weiland, the Soldiers volunteered more than 900 hours of community service, providing national disaster relief. Whether it

was setting up a convoy to get supplies to the Red Cross when they needed them or literally rolling up their sleeves and cleaning up the mess, those Soldiers were there.

The Sergeant Audie Murphy Club is an elite group, with the offer of membership only to the best of the best among Soldiers in the Army. Only the top ten percent of the Army's NCOs are inducted. In 2011 I'm proud to say 11 Soldiers from the brigade were inducted. As we move into 2012, one of my goals is to enhance our SAMC selection process and work to develop more candidates from 1st Space Brigade.

As we continue to successfully deploy Leaders and Soldiers, we must ensure their education enhances their ability to lead and maintain technical proficiency. We will develop junior NCOs by providing training programs, enhancing physical fitness and discipline, resolving Family issues, and offering counseling. We also will work to establish and improve relationships with other commands and agencies on the installations where we are a tenant unit. This means fostering an environment in which our Leaders and Soldiers get to know and interact daily with local commands and organizations. We will use these relationships to educate those we serve with and to inform our Leaders and Soldiers on the services local agencies provide to the Warfighter every day.

CSM EAGAN



Flipside^{2.0}

USASMDC/ARSTRAT

FEATURES

Vol. 10, NO. 3

2011
RAISES
THE BAR

ARMY
SPACE TEAM
GUIDES
MARINES
IN AFGHAN
PROJECT

GIVING
THANKS
OVERSEAS

VETERANS
HONORED



SFC BROWN & SGT KITCHEN

**SMDC/ARSTRAT'S TOP TWO BATTLE FOR
BEST WARRIOR**