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Army Space Journal



A Professional Journal on U.S. Army Space and Missile Defense Operations

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+ FUTURE OF WARFARE 30

+ SPACE & CYBERSPACE 40

+ MISSILE DEFENSE 44

+ FUTURE TASKS FOR SPACE SUPPORT ELEMENT 50



PROFESSION

IN ARMY SPACE & MISSILE DEFENSE

OF ARMS



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Warfighter View 26

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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Soldiers from the 100th Missile Defense Brigade stand ready to operate the ground-based missile defense system. LEFT TO RIGHT: SGT Grant Henne, 1LT Juan Andrini, LTC Ron Hoard, MAJ Rob Metcalfe, and SSG Clinton Bozenske. *Photo by SGT Benjamin Crane, 100th Missile Defense Brigade.*

COMMUNICATING SPACE & MISSILE DEFENSE TO THE WARFIGHTER

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These pages are flipped by design.

Turn them over to continue reading.



A senior wideband controller receives operation missions at a master station on the Wideband SATCOM Operations Center floor at Delta Company, Wahiawa, Hawaii.
Photo by DJ Montoya
1st Space Brigade.

ASJ 2.0

– A New Chapter Begins

Welcome to ASJ 2.0. As the “2.0” implies in the youngster’s lingo, we’ve improved the design to make things a bit more understandable in terms of layout and flow. Also with this edition, we’ve officially incorporated missile defense operations into our coverage. While the name of our publication remains the ASJ, we are now the professional journal for both Space and Missile Defense operations. This means that we print articles having to do with both disciplines. We continue to have four basic sections: Leadership columns, renamed “The Leading Edge”; professional and technical articles, renamed “Talking Shop”; Army space cadre training and management information, remaining as “Tip of the Sphere”; and lighter articles more focused on people and events in our community, still named “The Flipside”. Hopefully, our design makes it clearer why some appear upside down in this last section. We began flipping the content for “The Flipside” in 2004 to help distinguish the human-interest articles from traditional journal-type writings.

The point of ASJ 2.0 is that we want this publication to be for you, the reader interested in Army Space and Missile Defense information. We realize this is a two-way street, so we will continue to make refinements based upon what we hear from readers. We consider the ASJ as a hybrid of sorts because it has two missions. As many of you know, we began the publication in 2001 when the Functional Area 40 for space operations officers was first coming together and the beginnings of the space cadre concept in the Army sprung up. So, one of the missions is to provide the professional journal forum for Army Space and Missile Defense professionals – authorized under Army Regulation 25-30. The second is more on the journalistic side to inform a larger audience of issues on Space and Missile Defense operations – authorized under Army Regulation 360-1. To highlight this second mission, we’ve added a new feature to “The Flipside” in our latest re-make – leader notes from the 1st Space Brigade and 100th Missile Defense Brigade.

This combination of missions is a key consideration about the purpose of the publication. We want the Army to know about Space. When we began the publication we wanted the ASJ to be a part of the communication effort to

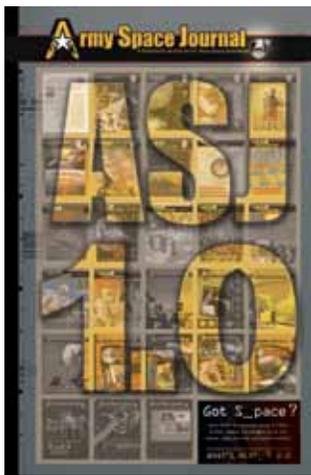
help people understand the contributions of Space capabilities to national security efforts, and we still do. And that’s the problem that still lies behind the madness: The Army doesn’t know much about space. In our defense for that matter, though, the world doesn’t know much about it. It is almost like the man behind the curtain – nobody really cares about the man or the process as long as people in the theater can hear the voice and enjoy the show. With Space, all the information that is derived and processed in or transmitted through sensors and satellites is very much appreciated and, more importantly, depended upon. The tremendous work to keep these systems viable and working, though, is pretty much taken for granted.

So the idea is to put together a classy publication – an informative one – that you can share with your family, co-workers, friends and bosses to help define our community. We want to give you a tool that does more than inform you and continue the dialogue amongst ourselves on the critical missions in Space and Missile Defense. We want this to be a tool you can use to help raise awareness in our Army and military about the critical role that Space-based capabilities play for the Army in our national security work. Frankly, we are proud of our legacy established in ASJ 1.0 as it reflected the more important space legacy fostered in our community over the last ten years our nation has been engaged in combat. So, as we move into the future, we want to take the step forward.

It’s not a bad time to do this renewal of our publication as the Army has selected this year to begin a focus on the Profession of Arms. To kick it off, we focused this edition on the people side of Space and Missile Defense, primarily non-commissioned officer perspectives of our business as a profession. Think about what our communities have done over the last decade of combat. Today, the 100th Missile Defense Brigade operates a ground-based missile defense system that our nation depends upon – a Space force application system that was not in place in 2001. Today, the 1st Space Brigade is organized to deliver assured Space force enhancement capabilities – not only early missile warning and satellite control for communications, but on-the-ground assistance from the Army Space Support Teams and Commercial Imagery Teams. Consider the operational capabilities such as Friendly Force Tracking, Wideband Global Satellite and Geographic Intelligence that reside within the USASMDC/ARSTRAT staff. And consider the leadership in space applied by our Space Support Elements and FA40s assigned to combat units. These are all high-level, no-fail capabilities matured and provided by our special community.

The key word that is often missed about these capabilities is that they’re assured – the Warfighter doesn’t have to guess on whether or not they will be there when needed. Highlighting this, the Space Cadre Steering Committee recently identified three critical factors impacting the Space business today. First, the Army is an aggressive customer of the Space capabilities

provided by the U.S. Air Force and other agencies. The ground force depends upon critical Space capabilities so that it can shoot, move, communicate, collect intelligence – these must be assured for the fight. Second, the Army cannot accept degradation or regression of Space capabilities in the current congested, competitive, and contested Space environment. Third, the Army must continually adapt and innovate in order to maintain its competitive advantage in Space.



... we are proud of our legacy established in ASJ 1.0 as it reflected the more important space legacy fostered in our community over the last ten years ...

We intend to look deeper into these systems in our Fall edition.

Finally, in the spirit of ASJ 2.0, we'll explore Space theory in future editions. Many people have indicated that military Space has advanced in the last ten years of combat, but literature on the topic hasn't kept pace. Also, one challenge facing our military communities is that their discussion about national military power in the Space domain has really not advanced much beyond a few efforts in the 20th Century. And, from a strategic communication perspective, this is probably a major reason why there is a lack of understanding of Space value in both the general population and in the military. Considering theory on land power, sea power, and air power, the question about Space power is whether or not it is simply something that enables the other domains or is it a power in and of itself? So what would Clausewitz say if Space capabilities existed in his time? Sun Tzu? Jomini?

Food for thought – we look to discuss these in upcoming editions. If you have thoughts about these, please let us know.

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Mike Howard See! Space matters!

Big Red 1 Soldier throws out first pitch via satellite for NY Mets Memorial Day game www.army.mil Members of the 3rd Brigade Combat Team, 1st Infantry Division, Task Force Duke, gathered together to help throw the first pitch live via satellite from Afghanistan during pre-game ceremonies, before the Mets took on the Pittsburgh Pirates in a Memorial Day evening game.



June 2 at 2:00 pm · Comment · Like



Mike Howard Just heard the news that Colonel Tim Coffin made the BG selection list! I think all his friends should throw him a surprise facebook party!

May 24 at 2:47 pm · Comment · Like



Mike Howard Heard an interesting concept for a series of articles to consider for the Army Space Journal. It looks at war theory as it developed over the centuries and correlating ideas about it with today's space domain. Such as Sun Tzu on Space ... Clausewitz on Space ... Sounds fun ... there really isn't a well developed space theory that adequately explains how space today contributes to national security objectives.

May 24 at 2:47 pm · Comment · Like



Shelly Stellwagen Actually, it's pretty simple. Take the high ground :-)) Don't forget to read the Tao of Pooh and the Te of Piglet while prepping for this series. Can't wait to read it.

May 13 at 8:00 am · Comment · Like



**LTG Richard
P. Formica**

Commanding General

USASMDC/ARSTRAT

The Army's Space Provider

In this issue of the Army Space Journal, I will share a slightly edited version of my recent testimony to the Senate Armed Services Subcommittee on Strategic Forces in May. My purpose was to inform the Senate about the Army as a user of space capabilities; to summarize the Army's space strategy and policy; and to discuss the space capabilities provided by the Army. I think it's important for you to know what I testified to Congress on this important topic of Army Space.

The Army as a User of Space Capabilities

As America's principal land force, our Army must be organized, trained, and equipped to provide responsive and sustained combat operations in order to fight as a Joint team and to respond, as directed, to crises at home and abroad. Geopolitical uncertainties and nearly a decade of continuous combat have necessitated a high degree of operational adaptability. The Army's Operating Concept identifies six warfighting functional concepts that contribute to operational adaptability: mission command, movement and maneuver, intelligence, protection, fires, and sustainment. Space-based capabilities leveraged and employed across the Army Space enterprise enable each of these warfighting functions. Simply put, space-based capabilities are critical elements to the Army's

ability to shoot, move, and communicate.

The Army is reliant on space-based systems, such as global positioning satellites, communication satellites, weather satellites, and intelligence collection platforms. They are critical enablers to our ability to plan, communicate, navigate, and maintain battlefield situational awareness, engage the enemy, provide missile warning, and protect and sustain our forces. Most of these services are so well integrated into weapon systems and support processes that Soldiers are unaware of the space connection. This seamless integration is due in large part to the coordination and cooperation of space professionals at the Air Force Space Command, USSTRATCOM's Joint Functional Component Command for Space, the Navy, the Army, and other DoD and Joint agencies.

The Army's unrelenting dependency on space-based capabilities requires active participation in defining space-related capability needs. The identified needs serve to ensure necessary Joint force structure, systems, and concept of operations (CONOPs) are developed and acquired, thereby enabling the land force to conduct the full range of military operations now and in the future.

Ensuring tactical and assured access to space is our focus—reassuring the requisite capabilities and effects are delivered to

... the Army has strengthened and broadened its investment to include exploitation of national and strategic space capabilities, defensive counterspace, leveraging the capabilities of space to enhance missile defense systems, and training and development of space professionals and space enablers.

the tactical Warfighter on time, every time demands that our space capabilities and architectures become more resilient against attacks and disruption. We must ensure that our Army does not face a day without space and space-related capabilities.

The Army's Space Policy and Strategic Plan

The Army Space Policy, most recently updated in 2009, focuses on the operational and tactical needs of land forces and assigns space related Army organizational responsibilities. It follows implemented DoD space policies and procedures, reestablishes objectives for Army space, and continues the Army Space Council. The Army's Space Policy outlines four broad space related objectives:

- To maximize the effectiveness of current space capabilities in support of operational and tactical land warfighting needs.
- To influence the design, development, acquisition, and concepts of operation of future space systems that enable and enhance current and future land forces.
- To advance the development and effective use of responsive, timely, and assured Joint interoperable space capabilities.
- To seamlessly integrate relevant space capabilities into the operating force.

The Army recently drafted its Army Space Strategic Plan, which is in final coordination with the Chief of Staff of the Army. This document is shaped by national level guidance, such as the National Space Policy and the National Security Space Strategy. The draft plan, coupled with the Army's Space Policy, outlines the Army's space enterprise path for strategic planning, programming, and resourcing.

The essence of our space strategy and the guiding vision of the Army space enterprise are to assure access to resilient and relevant space-enabled capabilities to ensure Army forces can conduct full spectrum operations. To achieve this, our draft space strategy rests on three tenets that link Army strategic planning and programming for space to the guidance in national and DoD space policy and strategy. The three essential tenets are:

- To enable the Army's enduring mission by providing requisite space-enabled capabilities to support current operations, as well as future transformation efforts.
- To leverage existing DoD, national, commercial, and international space-based capabilities.
- To pursue cross-domain solutions to create a resilient architecture to mitigate threats, vulnerabilities, and assure access to critical capabilities needed to sustain land force operations.

The Army—A Provider of Space Capabilities

The Army is a provider of space capabilities. Historically, our greatest investment in space capabilities has been in the ground segment—the integration of space capabilities into operational forces through command and control systems, communication terminals, and intelligence feeds. However, due to the critical importance of space capabilities, the Army has strengthened and broadened its investment to include exploitation of national and strategic space capabilities, defensive counterspace, leveraging the capabilities of space to enhance missile defense systems, and training and development of space professionals and space enablers.

In 2012, the Army plans to invest approximately \$500 million in pursuing space and space-related activities, evolving from a position of simply exploiting strategic space-based capabilities to a position where the Army is fully integrated into the planning, development, and use of theater-focused operational and tactical space applications.

USASMDC/ARSTRAT is the Army's space proponent, and coordinates with the Army Intelligence and Signal communities, USSTRATCOM, and other members of the Joint community to bring space-based capabilities to the Warfighter. USASMDC/ARSTRAT is at the forefront—providing trained and ready space forces and capabilities to the combatant commanders and the Warfighter and building future space forces. Aside from delivering and integrating space products and trained professionals to Joint Warfighter operations, USASMDC/ARSTRAT also conducts space mission related research and development activities. I would like to highlight our space provider role within three core tasks: providing trained and ready space forces and



**CSM Larry
S. Turner**

Command Sergeant Major

USASMDC/ARSTRAT

Army Space & **PROFESS**

**Members of a Highly
Selective Profession**

Title 10, U.S. Code, Section 3062 (a)

It is the intent of Congress to provide an Army that is capable, in conjunction with the other armed forces, of:

1. Preserving the peace and security, and providing for the defense, of the United States, the Territories, Commonwealths, and possessions, and any areas occupied by the United States;
2. Supporting the national policies;
3. Implementing the national objectives; and
4. Overcoming any nations responsible for aggressive acts that imperil the peace and security of the United States.

Missile Defense PROFESSIONALS

The United States Army is charged with a vital mission – an obligation that requires dedicated Soldiers and Army Civilians to achieve. As members of the U.S. Army, each of us must strive to remain worthy of being called professionals; members of a highly selective profession, the Profession of Arms. As the Army’s Space professionals, we play a crucial role – one that helps assure our Army’s ability to fulfill its assigned missions.

We provide the Space force enhancers; communications; position, velocity, and timing; environmental monitoring (space and terrestrial weather); intelligence, surveillance, and reconnaissance; and theater missile warning our fellow Soldiers depend on to dominate the battlefield. Any Soldier who’s had boots on the ground in a combat environment knows the importance of maintaining continual situational awareness, of precisely striking an intended target, and of having reach-back communications capabilities. We also provide the Soldiers – “300 defending 300 million” – who man America’s ground-based interceptor sites at Fort Greely, Alaska, and Vandenberg Air Force Base, Calif. As LTG Formica so eloquently states, “If the Army wants to shoot, move or communicate, it needs Space ... If it doesn’t want to do that, it doesn’t need Space.”

In order to carry out these vital missions, we have Soldiers deployed globally; working crew positions and supplying missile warning, missile defense, and satellite communications support to our forces. These Soldiers work around-the-clock, 24 hours a day, seven days a week, and 365 days a year providing communications and missile warning support to the Warfighter. We also have Soldiers continuously manning our ground-based interceptors, enabling missile defense for the Nation. In addition, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Soldiers also routinely deploy to Afghanistan and Iraq, providing space support to combatant commanders.

As Space and Missile Defense professionals, our Soldiers maintain the highest level of technical

knowledge and capability, while also maintaining the ability to deploy and fight! As Soldiers manning crew positions or serving as members of an Army Space Support Team or a Commercial Imagery Team, our Army Space professionals must meet extremely high training and certification requirements. Each Soldier must demonstrate the highest level of knowledge and understanding of the tasks assigned. They must also routinely demonstrate their proficiency during real-world operations and no-notice evaluations.

Our Soldiers are also members of the Profession of Arms; professional Soldiers, remaining current on warrior tasks and battle drills (e.g., marksmanship training, physical training, professional military education). You must earn the right to be a member of our profession in every situation – in garrison, on leave, in social gatherings – by adhering to our norms of conduct, our guiding values and our high standards. I’ve said many times, you either are or are not a Professional Soldier; it is not a “sometimes” thing. I firmly believe that each member of the USASMDC/ARSTRAT team is a professional and that each of us will strive to attain the high goals and standards of our profession on a daily basis.

To the Soldiers who work tirelessly to provide Space enablers and missile warning to the Warfighter and Missile Defense to our Nation and to the families who support them – thank you. Your sacrifice and efforts make a difference!

I also want to thank our Department of Defense Civilians and contractors who contribute and work tirelessly in our research, development, and acquisition areas to develop new systems and find new ways to assist the Warfighter. We can’t meet the unique and demanding needs of our Warfighters by just buying it off the shelf. What you do is of enormous consequence to our Warfighters.

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**Dr. Steven
L. Messervy**

Deputy to the Commander

Research, Development
and Acquisition

Bringing Technology to Our Profession of Arms

Last fall, the Chief of Staff of the Army published a white paper titled “The Profession of Arms” and called for an Army-wide evaluation of what it means to be a part of the profession, and the values and traits we must exhibit as members of the Profession of Arms. As Army leaders expand their examination of the profession, they are also looking at how Department of the Army Civilians fit into that equation. What do our Civilians bring to the fight, and in what context are they considered “professionals” or members of the Profession of Arms?

Because of the large Civilian workforce we have at USASMDC/ARSTRAT, the command is taking a leadership role in the Army review of the Civilian element of the profession. The Future Warfare Center has the lead for the command and has already designed a process to further examine the Civilian element. We look forward to participating over the coming months in that process and helping the Army frame our Civilian contribution to the profession.

Every day at USASMDC/ARSTRAT, our Civilians provide subject-matter expertise across all three elements of the command – operations, capability development, and materiel development. They provide corporate knowledge in support of our three core tasks: providing trained and ready Space and Missile Defense forces and capabilities; building future Space and Missile Defense forces; and researching, testing, and integrating Space, Missile Defense, directed energy, and related technologies. As you read the rest of this journal, you’ll see different articles focusing on those three core tasks. I’d

like to briefly mention some of the activities we’re doing in support of our third core task: researching, testing, and integrating Space, Missile Defense, directed energy, and related technologies.

Since the last Army Space Journal was published, we’ve had a number of key technology developments that support our Army and Joint Warfighter to proactively connect our technology development to the combatant commands and the Army Warfighter community. Some promising technologies are being developed out of our Technology Center, supported by experts across the command. As these technologies mature and are field-integrated and tested, we will see the true value of their potential support to the ground Warfighter.

Space and Missile Defense Command—Operational Nanosatellite Effect (SMDC-ONE). To achieve enhanced Space-based capabilities for the Warfighter, SMDC’s Technology Center is developing nanosatellite technology. The Space and Missile Defense Command – Operational Nanosatellite Effect is an initiative to meet Army and combatant command Space-related operational needs via the use of nanosatellites. In December 2010, NASA launched the first of the Army’s eight nine-pound satellites and demonstrated the technology feasibility of these small satellites for military use. The event marked the first launch of an Army-designed and manufactured satellite in more than 50 years.

The primary objective of the SMDC-ONE demonstration was to receive data from a ground transmitter and relay that data to a ground station. The 35 day test was very successful and offers evidence that the means may be available to provide the Army – the largest user of Space data – with the ability to augment communications to Soldiers and Joint Warfighters in remote locations. Additionally, the operations for these nanosatellites includes minimal infrastructure to maintain the communications capability. The SMDC-ONE project team currently is working toward a Joint Capability Technology Demonstration (JCTD) that will integrate the SMDC-ONE satellites into an operational environment, with the potential for residual operations. If the JCTD is approved, the team will focus on the demonstration for fiscal years 2012-13.

Kestrel Eye. Kestrel Eye is a DoD endeavor to manufacture a small imaging satellite to provide near real-time, medium-resolution imagery to the tactical Warfighter. Since its manufacturing costs will be relatively inexpensive, Kestrel Eye may have the ability to be robustly deployed into orbit, and provide imagery to tactical forces at a high rate of frequency. The satellite is designed for operational theater command capabilities, providing dedicated Space-based support to the tactical commander. Kestrel Eye is scheduled for initial launch in 2012.

Vertical/Horizontal Integration of Space Technologies and Applications. We are progressing successfully in a technology demonstration to integrate Space-based data into ground forces at the tactical level. The Vertical/Horizontal Integration of Space Technologies and Applications (VISTA) provides the capability to distribute relevant Space-developed products and services to all levels of Army battle command – from corps and theater needs to the specific needs of individual Warfighters. The capability to identify what specific pieces of Space-based information are relevant to individual Warfighters is a key component of VISTA's support capability.

Providing Space capabilities to the Warfighter is essential, but equally important is developing new technologies that can provide combatant commands with options for offensive operations, should deterrence fail. USASMDC/ARSTRAT is supporting U.S. Strategic Command (USSTRATCOM) in a risk reduction effort for a conventional prompt global strike capability.

Advanced Hypersonic Weapon. The objective of the Advanced Hypersonic Weapon (AHW) is to provide a transformational capability on the order of 6,000-kilometer range with 35 minutes time-of-flight and ten-meter accuracy or better. USASMDC/ARSTRAT is working on the Advanced Hypersonic Weapon-Technology Demonstration with the U.S. Air Force Space and Missile Center. The two services are deliberating how certain AHW technologies might fit into the Air Force's Prompt Global Strike program, which aims to field a next-generation weapon capable of striking fleeting targets

around the globe faster than today's munitions. This effort is in support of USSTRATCOM's operational needs.

The Department of Defense Quadrennial Defense Review Report of 2006 highlights the need for "prompt and high-volume global strike" capability to deter aggression and provide a broader range of conventional options to the President, if deterrence fails. In March 2006, the commander of U.S. Strategic Command testified before the Subcommittee on Strategic Forces of the Senate Committee on Armed Services that in situations where U.S. general-purpose forces are not in a position to respond rapidly to dangerous threats to the United States, the President may require USSTRATCOM to interdict such fleeting targets at global range. The Department of Defense is conducting an analysis of alternatives for prompt global strike capabilities in the near, mid, and long term. USASMDC/ARSTRAT is supporting USSTRATCOM in its Analysis of Alternatives for a Prompt Global Strike conventional weapon delivery vehicle, by cooperatively developing an alternative prompt delivery vehicle called the Advanced Hypersonic Weapon. This technology development effort serves as a viable strategy to broaden research and development and reduce risk to the Prompt Global Strike program. AHW's next milestone is the first flight test, scheduled for fourth quarter 2011.

These technology initiatives can't succeed without a combined team of professionals across the command and across the Department of Defense. Our Civilian professionals work hand in hand with our active and reserve components and contractor teams to deliver and field new capabilities to our Army and Joint Warfighters. Some of those Civilians do a lot of work in the background, often receiving little visibility for our successful technology initiatives – that group is our amazing support team of contracting and acquisition specialists and budget and program analysts. They assist our technical and test managers, engineers and scientists in executing the numerous technology programs under way at USASMDC/ARSTRAT.

Lastly, I want to take this opportunity to recognize some of our Civilian professionals. LTG Richard P. Formica recently nominated the Long Endurance Multi-Intelligence Vehicle (LEMV) Source Selection Team for one of the 2011 Army Acquisition Excellence Awards. Their commitment to excellence resulted in a rapid acquisition for the LEMV project. As our commanding general's nomination memo stated, it was "particularly exceptional in that it required coordination, collaboration, and direct participation from a broad range of agencies furnishing collective expertise." We wish them the best of luck in the Army's competition later this year. Hooah!

The
Sun
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ARSTRAT



**COL Timothy
R. Coffin**

Deputy Commander
for Operations

USASMDC/ARSTRAT

Learning from Lewis & Clark

Thomas Jefferson wanted to arrange an exploration of the American West for many years after the United States won its independence. He was President when the expedition finally began as an Army venture under the command of Meriwether Lewis and William Clark. The year was 1804. In many ways this small expeditionary group resembles a small, modern-day military unit – a couple of officers, several sergeants, almost two dozen privates, two contractors, and two family members. In 2011 the Army is conducting a yearlong review of the Profession of Arms. We can use the conduct of members of the Lewis and Clark expedition to consider how Soldiers and Civilians in USASMDC/ARSTRAT should practice the Profession of Arms today and in years to come.

The Lewis and Clark party called themselves the “Corps of Discovery.” They demonstrated a half-dozen characteristics (among others) that this century’s military practitioners should share:

- Explore the unknown – push the boundaries
- Serve as an emissary
- Be a pioneer, a model Soldier, and serve as part of a team
- Thirst for knowledge
- Innovate and invent
- Maintain a good reputation

First, let’s review the Profession of Arms. The Center for the Army Profession and Ethic tells us that “an American Professional Soldier is an expert, a volunteer certified in the Profession of Arms, bonded with comrades in a shared identity and culture of sacrifice and service to the Nation and the Constitution, who adheres to the highest ethical standards and is a steward of the future of the Army profession.” The Profession of Arms is a long-standing international concept. In the United States, it is distinguished in three ways: (1) Service to the Constitution – instead of to an individual leader, group of people, government, or territory; (2) professionalism of our officer and noncommissioned officer corps; and (3) the proficiency in integrating technology. The creeds for the Army’s workforce highlight these distinctions. The Soldier’s Creed says, “I am an expert and I am a professional.” The NCO Creed declares, “I will not forget, nor will I allow my comrades to forget, that we are professionals, Noncommissioned Officers, leaders!” The Army Civilian Corps Creed says, “I support and defend the Constitution of the United States and consider it an honor to serve our Nation and our Army.” Professions develop and maintain distinct bodies of specialized knowledge and impart expertise through formal, theoretical, and practical education. Each profession establishes a unique subculture. We are currently drafting what a creed would look like for Army Space professionals.

Today our command continues this tradition of exploring the unknown. We are expanding the knowledge and experience gained by the Army's six decades of involvement in Space and Missile Defense.

Understanding the Profession of Arms is important. It motivates American military professionals to work, study, and train throughout their careers to make sure our armed forces are ready and capable of meeting the call to duty. The Army was only 30 years old at the time of the Lewis and Clark expedition. Expedition members are early examples of military professionals. They bonded to their comrades in a shared purpose; made sacrifices in service to the Nation and the Constitution; and continued building the traditions and principles of the Army profession.

Explore the Unknown – Push the Boundaries

Historians are correct in pointing out that the Corps of Discovery didn't discover anything. All the plants, animals, and geographic features the expedition observed had been known to and used by Native Americans for hundreds of years. The expedition, however, was the first to create scientific records to document and share the knowledge of these new "discoveries." The explorers also probed river forks and mountain passes in hopes of finding the shortest, lowest, easiest path (sometimes making bad choices). They sent living specimens of a prairie dog and magpies back to Washington, D.C.

Today our command continues this tradition of exploring the unknown. We are expanding the knowledge and experience gained by the Army's six decades of involvement in Space and Missile Defense. USASMDC/ARSTRAT Soldiers control satellite payloads in the frontier of Space. The unknown areas are being investigated through research and development into advanced supercomputing; the SMDC-ONE and Kestrel Eye nanosatellites; high energy, solid state lasers; high altitude airships such as HiSentinel, Orion, and High Altitude Long Endurance – Demonstrator; and new exotic materials including advanced thermal batteries and carbon nano fabrics.

Serve as an Emissary

On the journey's outbound leg, the Corps of Discovery traveled 4,100 miles from St. Louis, Mo., to Astoria, Ore. Lewis obtained passports from France and Great Britain, because they previously had controlled or claimed much of that territory. The expedition encountered dozens of Native American tribes. Jefferson instructed the explorers to gather information about the tribes' languages, traditions, and involvement in agriculture, hunting, war, and other activities.

To draw a parallel, we are emissaries of Army Space and Missile Defense to many groups. There are opportunities to tell the Army and the command's story in many settings, whether that is a civilian in the airplane seat next to you or a high-school student thinking about joining the military. Our commander, LTG Richard P. Formica, encourages USASMDC/ARSTRAT personnel to use the command's three core tasks as a starting point in such discussions:

- Provide trained and ready Space and Missile Defense forces and capabilities to the Combatant Commanders and in support of the Warfighter;
- Build future Space and Missile Defense forces;
- Research, test, and integrate Space, Missile Defense, high altitude, directed energy, and other related technologies.

Be a Pioneer, a Model Soldier, and Serve as Part of a Team

Jefferson directed the expedition to search for a water route across the United States. His instructions mentioned traversing the known rivers of the time, going in keelboats or canoes, sometimes on foot or horseback. From the explorers' perspective, they were traveling through little-known or unknown territory.

The pioneering spirit still is found in USASMDC/ARSTRAT. The command is a leader in developing new ways of presenting photographic information gathered from Space, such as three-dimensional fly-throughs. In Alaska, known as "America's last frontier," ground-based missile defense crews stand watch 24/7/365. The launch and successful flight of SMDC-ONE last December built on the heritage of America's first satellite, Explorer I, designed, built, and launched by the U.S. Army in 1958.

We also can see that the expedition's Soldiers modeled many military skills. Competency in land navigation, physical fitness, and marksmanship was critical in the expedition's time. It still is. Today's Soldiers need to master the tools of their trade, just as Lewis and Clark recorded latitude and longitude at prominent points; measured distances; and mapped the rivers, plains, and mountains.

Soldiers must keep fit and be proficient in the care and use of their weapons – Soldiers first! By doing so, you will follow the example set by your predecessors in the Corps of Discovery.

Lewis >> Page 17



Mr. Larry Burger

Senior Executive Service

Director, Future
Warfare Center

Speak up, Share Your

All Command Members Encouraged to Take Survey on Profession of Arms

The year 2010 marked our involvement in the longest war in United States history. The Army realizes an era of persistent conflict has impacts on the military. With this in mind, the Secretary of the Army and the Army Chief of Staff directed that the commanding general of U.S. Army Training and Doctrine Command (TRADOC) lead a review of the Army Profession of Arms. They issued terms of reference which state that, as a profession, it's now essential that we take a hard look at ourselves to ensure we understand what we have been through over the past nine years, how we have changed, and how we must adapt to succeed in an era of persistent conflict.

In An Army White Paper, The Profession of Arms, GEN Martin E. Dempsey, the TRADOC commander at the time, says:

"In adapting to the demands of combat in Iraq and Afghanistan, as well as to the new strategic realities of the 21st century, we have been so busy that we have not consistently thought through how these challenges have affected the Army as a Profession of Arms. We now need to consider how well we are self-policing ourselves both on the battlefield and in garrison, the extent of our ability to care for Soldiers and their families, and the broad development of Army professionals. We need to assess our personnel management systems to ensure they are focusing on and capitalizing on the exceptional talents of our junior professionals and broadening them for future service. We must assess our civil-military relations as we interact with and support the Nation and its elected and appointed officials. These and many other factors need to be assessed and then addressed to enable the Army to succeed in this era of persistent conflict."

Thoughts

What Is the Army's Profession of Arms Campaign?

In October 2010, the Secretary of the Army and the Chief of Staff of the Army directed TRADOC to conduct a comprehensive review of the Profession of Arms to assess how the Army has changed and how it must adapt to remain successful in an era of persistent conflict. The review is an Army-wide, multidimensional assessment examining both the strengths that have sustained the Army as well as the impact of more than ten years of continuous deployments. The overall objective of the campaign is for Soldiers and leaders to refine their understanding of what it means to be professionals – expert members of the Profession of Arms – after more than nine years of war and to recommit to a culture of service and the responsibilities and behaviors of our profession as articulated in the Army ethic. The Profession of Arms campaign is being done during calendar year 2011 and is organized around three phases that assess the state of the Army Profession at the individual, unit, and institutional levels. The individual level is comprised of five cohorts: Officer, Warrant Officer, Noncommissioned Officer, Soldier, and Army Civilian.

USASMDC/ARSTRAT Profession of Arms Campaign Efforts

The Future Warfare Center will lead the command's effort and will focus these efforts for the command based on the cohorts and functional areas of operations, acquisition corps, and capability development. As GEN Dempsey says, it is "essential that we take a hard look at ourselves to ensure we understand what we have been through over the past nine years, how we have changed, and how we must adapt to succeed in an era of persistent conflict." This hard look means we must answer three critical questions:

- What does it mean for the Army to be a Profession of Arms?
- What does it mean to be a professional Soldier?

- After nine years of war, how are we as individual professionals and as a profession meeting these aspirations?

We want to cast the widest net possible and capture input from everyone who wishes to help us answer these questions. USASMDC/ARSTRAT leadership is actively involved in this campaign, and we encourage conversation and dialogue across the command. You have several ways to give us your thoughts and opinions. The Army is sending out 20,000 Profession of Arms surveys asking your opinion so if you get one, fill it out. If you don't receive one, visit the Profession of Arms Web sites and give us your thoughts. You will find them at <http://cape.army.mil/> and <https://www.us.army.mil/suite/page/611545>. These sites will give you access to the survey and an array of information about the campaign.

The command also is conducting several focus groups from June to August to gather answers to specific questions the Army has about the Profession of Arms. LTG Richard P. Formica will continue the discussion on the Profession of Arms at his Town Hall meetings and future messages. The Profession of Arms theme will be included in officer, NCO, and Civilian professional development and the theme will be included in our celebration of the Army's birthday this year.

We look forward to this exciting campaign, and I ask for your support. We need everyone in the command to be involved. The Profession of Arms White Paper declares that professions are defined by inspirational, intrinsic factors such as the lifelong pursuit of expert knowledge, the privilege and honor of service, camaraderie, and the status of membership in an ancient, honorable, and revered occupation. This is what motivates true professionals; it's why a profession like ours is considered a calling – not a job.

The
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From Space Provider

>> Page 5

capabilities to the combatant commanders (COCOMs) and the Warfighter; building future space forces; and researching, developing, testing, and integrating future space capabilities.

Providing Trained and Ready Space Forces and Capabilities. Over 1,100 Soldiers and Civilians serving with USASMDC/ARSTRAT's 1st Space Brigade provide access to products and services that are essential in all phases of combat operations. The brigade's three battalions, comprised of active, National Guard, and Reserve Soldiers, support combatant commanders by providing satellite communications, space operations, missile warning, and forward deployed space support teams. These Space Operations Officers, along with members of the Army's Space Cadre, directly influence the execution of strategic operations in support of tactical level ground maneuver forces. Their principal duties include planning, developing, resourcing, acquiring, integrating, and operating space forces, systems, concepts, applications, or capabilities in any element of the DoD space mission areas.

During the 1990s, realizing the essential need of space professionals, the Army created Functional Area (FA) 40—Space Operations Officers—within our commissioned officer corps. USASMDC/ARSTRAT is the Army's personnel developer for FA 40 officers. The approximately 300 FA 40s serve in Army, Joint, and DoD commands and organizations across all echelons—tactical, operational, and strategic. The Army's Space Cadre, initiated in 2007, is comprised of both military and civilian personnel who represent the Army's interests in space operations, policy, science and technology, and acquisition. The Cadre consists of Soldiers and civilians from a wide variety of branches, career fields, disciplines, and functional areas.

As part of the DoD overarching effort, the Army has integrated Space Operations Officers into the Office of the Secretary of Defense, the Joint Staff, the Air Staff, the North American Aerospace Defense Command, the Air Force Space Command, and other space focused organizations and academic institutions. In each of these organizations, personnel not only provide the Army perspective of space related capabilities, they articulate requirements from an operational standpoint in the Joint and combined environments. A summary of the critical space capabilities provided by Army's space

professionals is highlighted below.

Army Space Support Teams During operations, including those in Afghanistan and Iraq, the USASMDC/ARSTRAT's Army Space Support Teams continuously provide space-based products and services to combatant commanders and other international government agencies. The teams are on-the-ground space experts, pulling key commercial imagery, forecasting the impact of space weather, and providing responsive space support to their units. Just last month, three new teams deployed to theater to provide their capabilities for the next nine months—60 teams have now provided invaluable on-the-ground responsive expertise to combatant commanders and the Warfighter in Afghanistan and Iraq.

Satellite Communication Support Centers USASMDC/ARSTRAT provides and operates the DoD's Regional Satellite Communications Support Centers and Wideband Satellite Communications Operations Centers, located both in the United States and overseas. These centers are the regional management hubs for a majority of the DoD's satellite communications capabilities, providing reliable and responsive support. In close partnership with our Air Force and Navy partners, we ensure essential communications lifelines are available to our ground, air, and sea forces, as well as the diplomatic corps around the world.

Friendly Force Tracking Situational awareness is particularly vital given the challenges of conducting operations in urban areas. As the Army has the greatest number of Warfighters and systems to track on the battlefield, our Friendly Force Tracking assets help deliver timely situational awareness and identify friendly forces during combat. Additionally, today, in support of Operation Tomodachi, we are providing the friendly force tracking architecture that enables the U.S. Forces Japan and the U.S. Pacific Command to see its ground support elements via a common operational picture.

Ballistic Missile Early Warning Critical to the Joint Force Commander's theater force protection, the Army provides ballistic missile early warning from within the theater or region. The 1st Space Brigade's Joint Tactical Ground Stations Detachments, operated by Army personnel, monitor enemy missile launch activity and other infrared events of interest and share the information with members of the air and missile defense and operational communities. Presently, our JTAGS Detachments are forward-deployed across the globe, providing assured missile warning to theater commanders and Joint Warfighters.

Geospatial Intelligence Support The Army, as an operational element of the National System for Geospatial-Intelligence, provides geospatial intelligence production in direct support of the combatant commands. The Army's space and intelligence experts perform exploitation of a variety of commercial, civil, and DoD imagery data derived from space and airborne sources. Current support includes providing imagery to U.S. Africa Command in support of contingency operations in Libya, as well as imagery and exploitation products to U.S. Pacific Command regarding the extent of damage to the Fukushima nuclear power site in Japan. Additionally, they aid in the exploration of emerging spectral system technologies and in transitioning new capabilities to the Warfighter.

Operations Reach-back Support and Services The USASMDC/ARSTRAT Operations Center, located at Peterson Air Force Base in Colorado Springs, Colorado, provides reach-back support for our space experts deployed throughout the operational force and allows us to reduce our forward-deployed footprint. This center maintains constant situational awareness of deployed elements, continuously responds to requests for information, and provides the essential reach-back system of connectivity with technical subject matter experts.

Tactical Exploitation of National Capabilities The Army Special Program Office is the Army focal point for the exploitation of national intelligence, surveillance, and reconnaissance assets and products through the Tactical Exploitation of National Capabilities program. The Army is fully integrated into the National Reconnaissance Office and the Intelligence Community and has numerous deployed units providing support throughout the intelligence battalions and brigades.

Strategic Space Surveillance The Army also operates facilities and assets that are of upmost importance to advancing the Nation's use of space. The U.S. Army Kwajalein Atoll/ Reagan Test Site (RTS), located in the Marshall Islands, is a national asset that provides unique capabilities to monitor objects in deep space. The RTS maintains a vigilant watch, providing critical space situational awareness and contributing to a variety of missions.

Building Future Space Forces The Army uses established and emerging processes to document its space-based needs and pursue Army and Joint validation of its requirements. This disciplined approach helps ensure limited resources are applied where Warfighter operational util-

ity can be most effectively served. We continue to pursue and develop the necessary adaptability across the Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities (DOTMLPF) to mitigate threats and vulnerabilities while sustaining land force operations.

As the Army's force modernization proponent for space, high altitude, and global missile defense, USASMDC/ARSTRAT ensures space, high altitude and missile defense capability development is integrated and nested within the broader Army capability development efforts. The command analyzed the potential of long-endurance, long-loiter Medium and High Altitude platforms to support Army missions. The AN/TPY-2 radar detachment is another excellent example of Army cross-functional synchronization, as USASMDC/ARSTRAT worked with the Army's Air and Missile Defense Task Force, Fires Center of Excellence (FCoE), U.S. Army Forces Europe, Missile Defense Agency and USSTRATCOM's JFCC-IMD to deliver this capability to the European theater.

To properly train space professionals, the Army developed the Space Operations Officer Qualification Course and the Army Space Cadre Basic Course. These two courses provide the necessary foundation for the Space Cadre. The Army also leverages the high-quality space training developed and administrated by the Air Force. Finally, numerous space officers complete additional post-graduate studies at the Naval Postgraduate School, accredited civilian institutions, and training with industry. The Army is committed to growing, training, developing, tutoring, and advancing Space professionals.

Researching, Developing, Testing, and Integrating Future Space Capabilities The Army is an instrumental Joint partner in addressing tomorrow's space requirements to ensure land warfare dominance. Each year, the Army plans and programs funding for space related technology research and development. Despite the current and projected resource constrained environment, the Army recognizes the need to prioritize, leverage, and invest in promising space research and development technologies. I would like to briefly highlight three technology endeavors that have potential to provide space support to the ground Warfighter.

Space and Missile Defense Command-Operational Nanosatellite (SMDC-ONE)Effect: To achieve enhanced capabilities for the Warfighter from space, an approach that holds great promise is the deployment of constellations of very small satellites into low earth orbit.

SMDC-ONE, is an initiative to meet specific Army space related operational needs via the use of nanosatellites. The Army recently built eight, nine-pound satellites for use in a technology demonstration. The first of these nanosatellites was placed into low earth orbit last December. This marked the first launch of an Army designed and manufactured satellite in more than 50 years. The primary objective was to receive data from a ground transmitter and relay that data to a ground station. The demonstration was successful and offers evidence that the means may be available to provide the Army—the largest user of space data—with an ability to economically provide non-line of sight sensor data from non-permissive environments to remote located Soldiers.

Kestrel Eye: Kestrel Eye is an Army endeavor to manufacture a small imaging satellite that will provide near real-time, medium resolution imagery to the tactical Warfighter. Since its manufacturing costs will be relatively inexpensive, Kestrel Eye may have the ability to be robustly deployed into orbit, providing a potential solution to present existing imagery needs to tactical forces. The satellite is designed for operational theater command capabilities, providing dedicated space-based support to the tactical commander. Kestrel Eye is scheduled for its initial launch in 2012.

Vertical/Horizontal Integration of Space Technologies and Applications: We are successfully progressing in a technology demonstration to integrate space-based data into our ground forces at the tactical level. The Vertical/Horizontal Integration of Space Technologies and Applications (VISTA) provides the capability to seamlessly distribute relevant space developed products and services to all levels of Army battle command—from corps and theater needs to the specific needs of individual Warfighters. The capability to identify what specific pieces of space-developed information are relevant to individual Warfighters is a key component of VISTA's support capability.

Conclusion

The Army is dependent upon the capabilities that space brings to the battlefield—space is the ultimate high ground. Space capabilities continue to be inextricably linked to warfighting. In present and future conflicts, we rely on and advocate for space products and services provided by the DoD, other government agencies, our allies and coalition partners, and commercial entities to shoot, move, and communicate. The Army will continue to provide trained and ready space forces and capabilities to the combatant commanders and the Warfighter, build future space forces, and research, develop, test, and integrate future space capabilities. Fully integrated capabilities will provide depth, persistence, and reach capabilities for commanders at the strategic, operational, and tactical levels. Assured space systems and well-trained and experienced space professionals significantly reduce the fog, friction, and uncertainty of warfare. The Army depends on space for everything we do in our military operations. This Committee's continued support is essential in enabling us to maintain and further improve our space capabilities and provide the best-trained space professionals to combatant commanders. The courageous Warfighters that serve to protect the safety and welfare of our Nation deserve nothing less.

Epilogue

I appreciated having the opportunity to testify before the Senate's Strategic Forces Subcommittee to discuss the Army's requirements as a user of space, the Army's space strategy and policy, and the capabilities the Army brings to the Joint fight. Including this testimony in the Army Space Journal provides our readers information about the direction the Army is heading with Space.

SECURE THE HIGH GROUND

The
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the
Leading
Edge.

From Lewis >> Page 11

Those Soldiers were in shape for challenging physical exertions. They were qualified riflemen as well, always ready and capable of defending themselves against threats.

Thirst for Knowledge

A knowledge curve exists in every period of time, whether 1804 or 2011. Soldiers and Civilians should keep ahead of the curve through professional reading; selecting and using the best available technology; and identifying and being prepared for actual and potential threats. Lewis absorbed the best scientific and technical knowledge of the time through diligent reading and studying. Army weapon makers provided the latest model of rifles, gear, and even the iron frames of a collapsible, portable boat. Lewis also assessed the frontier's threats and planned accordingly – including illness, bad weather, lack of fresh food, and hostile action.

Innovate and Invent

This article has mentioned some American innovations and inventions used to explore land, water, air, and Space beginning 200-plus years ago. Those four places, plus cyberspace, are identified as combat domains. The time needed to carry out a military campaign – or even a peaceful exploration – across the domains has gone from years to days, minutes, and seconds. Members of the Corps of Discovery in 1804 would recognize the need of Space and Missile Defense professionals in 2011 for communications; intelligence, surveillance, and reconnaissance; weather; and positioning, navigation, and timing. We can tackle everyday and long-term challenges through innovation and invention. Keep your minds open to discovering, developing, and exploiting new methods and tools to accomplish our command's core tasks.

Maintain a Good Reputation

A couple of important events related to military professionalization occurred just before the expedition departed. Jefferson signed legislation creating the

U.S. Military Academy in March 1802, and the permanent federal Army was established in 1803. These steps continued the reputation for American proficiency, effectiveness, and loyalty established during the Revolutionary War. Some members of the expedition were familiar with that reputation, because their fathers or older brothers had fought in the war. Maintaining a good reputation folds together the five other concepts we have examined under the banners of the Profession of Arms and the Corps of Discovery. Today's Soldiers and Civilians create a worthy name for themselves when they explore the unknown, serve as emissaries and pioneers, thirst for knowledge, carry out their duties in a model fashion, and innovate and invent. They uphold the standards and traditions of the U.S. Army that began in the days of the American Revolution and the Lewis and Clark expedition. We all should be inspired to act likewise.

Conclusion

We have voyaged through time and examined six principles that illustrate the Profession of Arms. These ideas have value for all members of the military profession. Our command's focus, of course, is Space and Missile Defense – something of a frontier itself. I encourage you to remember these concepts as you review and perform your day-to-day missions on behalf of the Nation.

You can discover more about the Profession of Arms at <http://cape.army.mil/ProfessionOfArms.html> and the Lewis and Clark expedition at <http://www.nps.gov/lecl>.

The
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Attendees of the USASMDC/ARSTRAT Senior Enlisted Leaders Training Conference listen to a briefing during the command's Senior Enlisted Leaders Training Conference held March 21-24 at Patrick Air Force Base, Fla.

Photo by Dottie White

SENIOR NCO VIEW

The Word from the High Ground

BY MICHAEL L. HOWARD,
RACHEL L. GRIFFITH
& SCOTT ANDREAE

Listening to Space and Missile Defense senior enlisted leaders who are responsible for the Soldiers who are primarily involved in the Army's day-to-day grind, there is a clear sense that their Soldiers are delivering critical products. The themes that emerge are expertise, dedication, resilience, certification and knowledge.

"... We have to do it right because if we don't, it could impact a lot of American lives," is how CSM Larry Turner summed it up. Turner, the USASMDC/ARSTRAT command sergeant major, hosted a one-week training conference for the senior enlisted leaders in the command. The conference focused on the Profession of Arms in Space and Missile Defense NCOs training our warriors. During the conference, the ASJ sat down with several NCOs from both disciplines to get their thoughts.

The Warfighter's "ability to communicate, target, and know where they're at on the battlefield is all incumbent upon the capabilities we provide from Space," according to CSM James Ross, 1st Space Brigade command sergeant major. "We are the only unit in the nation that provides the country with deterrence against rogue nations who may be to less likely to use intercontinental ballistic missiles if they know we have the capability to defeat their weapons," said MSG Eddie Negron, 100th Missile Defense Brigade master evaluator.

Excerpts of the interviews follow. →



CSM Larry Turner USASMDC/ARSTRAT

One of the marching orders I have is to help explain, or make, the rest of the Army understand what SMDC/ARSTRAT is all about. I will say that we have special missions that are handled at the highest level. We have a security mission that protects and defends the American people. We have eyes and ears around the globe. Our mission, even though we're not combat in the normal sense as deployed, I still would consider it a combat mission. Our mission is 24/7, around the globe and we have to do it right because, if we don't, it could impact a lot of American lives.

Our focus is in that arena. So we are in the Space arena, which is a little bit different. We pretty much cover the same areas that the Army covers, we just cover it from the Space perspective. We need to rely on the Training Doctrine avenue to take the Space profession to the next level. The way I see it, in the next five, ten years, the Space and Missile Defense missions are going to grow more. Because of that, you're going to need more Space enablers. So to get to those Space enablers, we need to go to the TRADOC avenue to get there.

SGM Hohn Wolf

Garrison Sergeant Major, U.S. Army Kwajalein Atoll

With the last ten years of conflict, it has been what has everybody done for the Warfighter? We do that with our Space support elements, where they go out to the combatant commanders and they get that imagery, just continue to refine and develop that information where we can provide the maximum amount of information necessary to the commanders on the ground so the commanders can make an informed, timely decision and aren't operating in a vacuum.

The Profession of Arms to me means being a professional and expert in your career field. The way you become an expert is you are trained and certified in the skill sets that you need at each level as you progress in



Photo by Rachel L. Griffith

“ We are the only unit in the nation that provides the country with deterrence against other rogue nations who may be less likely to use the ICBMs if they know we have the capability to defeat their weapons.”

— MSG Eddie Negron
100th Missile Defense Brigade

seniority. The way we do that is we provide the trained, certified Space professionals who get the information to the combatant commanders and the Warfighters that they need to prosecute their missions.

CSM Russell A. Hamilton 100th Missile Defense Brigade

We bring the only weapon system to bear right now that is able to support U.S. Northern Command in order to defend the nation. Prior to our existence, the only thing they had at their disposal was a warning that something was coming. Now we actually bring, to the strategic level, a means for defense. Our Soldiers take their jobs very seriously. They're highly skilled, they're motivated, and they're resilient and vigilant in the way they conduct their jobs, despite adverse conditions, despite the constant rotation of being on shift. They're able to live up to the challenge, because again, they take what they do very seriously.

Throughout history, it's been debated, are NCOs professionals? And you can offer up evidence from decades past that maybe even supported the answer being “no.” But in the last, probably, 20 years, maybe a little longer, the NCOs have evolved in their way of educating, in their way of discipline to where officers and NCOs alike have the prerequisite knowledge and expertise and dedication that makes them professional warriors. I think it's absolutely outstanding that we're focusing on the discussion of our profession as Soldiers and the professional attributes that each individual Soldier brings to the profession.

MSG Eddie Negron Master Evaluator, 100th Missile Defense Brigade

With the 100th Missile Defense Brigade and the 49th Battalion and detachment at Vandenberg AFB, Calif, it brings to the nation a layer of defense against intercontinental ballistic missiles (ICBM). We are the only unit in the nation that provides the country with deterrence against

rogue nations who may be less likely to use the ICBMs if they know we have the capability to defeat their weapons.

If we're going to label ourselves the Profession of Arms for Missile Defense that means in order to paint our masterpiece we need to use all the tools that are available to us – all our sensors, all our weapon systems, all our human resources that we have to be able to fight with and develop this profession to include schools and professional development and just continue to train and lead our Soldiers to be the best Soldiers that we can.

To bring Space and Missile Defense forward in the Army, we need to educate the Army more on the Space program. Our Advanced Leaders Course and Senior Leaders Course do not address Space and Missile Defense when they're teaching. Our 14 series Soldiers, when they go to ALC or SLC they're taught generic air defense artillery. They're not taught Missile Defense. I think there's an education process that needs to happen in the Army in general about the capabilities of Space and Missile Defense.

CSM John Drew 49th Missile Defense Battalion

We are responsible for the security of 300 million American citizens. Both the Warfighter and the combatant commanders are extremely important. We stress that importance to Soldiers on a regular basis, ensuring that they understand the importance of their role and the impact it does have. The American people rely on us 24/7.

The Profession of Arms – it's a volunteer basis, but you have to consider that is your current profession. People change their profession; you know, it becomes a life decision. The Space and Missile Defense program will be around for a long time – that is the future. I'm not sure of the road, or the path, that it's going to take. We've evolved from ground conflict to now using the technology to fight our battles.

NCO View
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SELTC

Senior Enlisted Leaders Training Conference

Promotes Ideas, Professional Development

BY DOTTIE WHITE

PATRICK AIR FORCE BASE, Fla. — The annual U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Senior Enlisted Leaders Training Conference was held March 21-24 here.

This year's theme was "The Profession of Arms: Space and Missile Defense Noncommissioned Officers Training Our Warriors."

"The Army is an American Profession of Arms," CSM John Mattie, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command G3 sergeant major, said during comments to

the attendees. "It is defined as a vocation comprised of experts certified in the ethical application of land combat power, serving under civilian authority, entrusted to defend the Constitution and the rights and interests of the American people."

With that theme in mind, the purpose of the event was to carry out a professional forum providing senior noncommissioned officers with the education, knowledge and information about new Army and space programs as well as build esprit de corps within the command for all active, National Guard and Reserve components.

"This year's conference was unquestionably the best one yet," said 1st Space Brigade CSM James Ross, who has attended the past four SELTCs. "Every year we have made adjustments to the agenda, and this year I think we really got it right. I believe the Profession of Arms starts with the NCO Corps and sets the U.S. Army up for continued success well into the next decade."

Presenters from various areas of professional development briefed attendees. USASMDC/ARSTRAT CSM Larry S. Turner kicked off the conference with opening remarks and a command video. Then he inducted SSG Keon Ellison, SSG Tony Lopes, and SSG David Sizemore into the Sergeant Audie Murphy Club. Assisting Turner with the inductions were Chief Master Sgt. of the Air Force James A. Roy; CSM Marvin L. Hill, senior enlisted leader of International Security Assistance Force and U.S. Forces - Afghanistan; Chief Master Sgt. Thomas S. Narofsky, command chief master sergeant of United States Strategic Command; and COL Timothy Coffin, deputy commander for operations, USASMDC/ARSTRAT.

Next, Roy discussed the relationship between the Army and Air Force and how NCOs for both services have to continue to train the NCO Corps to make it stronger and better.

Other highlights of the week included a video presentation from Army Astronaut LTC Shane Kimbrough. He spoke about his mission to the

International Space Station as an STS-126 Endeavour crewmember (Nov. 14-30, 2008) and answered questions. Following Kimbrough's remarks, Soldiers had an opportunity to speak with him and get autographed photos.

Mattie moderated a discussion panel that included retired SMA Jack Tilley, retired CSM Ralph Borja, and retired CSM Frank J. Mantia - who all served as Command Sergeants Major of USASMDC/ARSTRAT. They each provided opening remarks followed by questions from the NCOs in attendance.

Turner said he was very pleased to see so many outstanding briefs.

"The Warfighter brief has always been the best briefing that we have on the schedule," said Turner. "This year's brief was no different. CSM Hill (who presented the brief) touched on several areas — from how we, as Space NCOs, support the Warfighter, to being better NCOs and the don't ask, don't tell policy."

CSM William C. Baker said, "As a senior NCO, it was a great opportunity to have senior command sergeants major who have served at the highest levels of the Army and Air Force present. To learn from their experiences will only enhance our NCOs and ensure success in the future."

Following the morning briefings on the final day of the conference, the senior NCOs went on a staff ride and tour of Cape Canaveral and the Kennedy Space Center. There were many positive comments from the attendees regarding the success of the conference.

"This year's Senior Enlisted Leaders Training Conference was the best I have ever seen," Baker said. "It set a high standard for all other units to follow. I know our senior noncommissioned officers are better informed and have a better understanding of the demands and challenges ahead."

"I think we had a lot of experience ... a lot of knowledge shared," Turner said. "I think all of the NCOs left here a lot more educated, more knowledgeable as Space professionals, and just more professional NCOs." 





SMA (ret) Jack L. Tilley looks on with COL Timothy R. Coffin during a SELTC year in review briefing.
Photo by Dottie White

1SG William Ray

Headquarters and Headquarters Battery
100th Missile Defense Brigade

Seven years ago, we didn't have a defense against intercontinental ballistic missiles. Now we do. There are people out there now who don't believe the system works. I'm an operator and I will tell you, it works. And I have faith it works. My family, my friends, they know they are guarded at nighttime. When they're sleeping, we are manning the system. We aren't going to let anything happen at night or daytime.

In the 100th and the 49th, I believe we have the most professional Soldiers we could have. We come to work every day, we do the rough shifts, two days, two swings, two mids – then you get your off-cycle, then right back to two days, two swings, two mids. There are Soldiers out there standing in those gun turrets at 40, 50, 60 below zero and wind 30 to 40 miles an hour. It's cold. You've got cold-weather gear, but it's still cold. And they do it day in and day out, and again there's just no one more professional than those guys, I believe.

CSM James Ross

1st Space Brigade

It's very simple: The Warfighters need to understand that their ability to communicate, target, and know where they're at on the battlefield is all incumbent upon the capabilities that we provide from Space. Warfighters need situational awareness to be effective, and the majority of tools they utilize to understand the operating environment are provided through Space assets. The Soldiers of the 1st Space Brigade are working tirelessly to ensure that the Warfighters have up-to-date imagery, satellite communications, warning from missile threats, and protected data links. Only about nine percent of the brigade personnel are actually located in the Central Command area of operations, but 100 percent of our Soldiers are supporting the efforts in Operation Enduring Freedom, Operation New Dawn, and other major operations across the globe.

For me, the Profession of Arms is really geared toward making sure that we understand that we have a responsibility to provide the most well-trained and best-resourced Space forces to our supported commanders. We need to analyze the past ten-plus years of conflict and continue to grow more resilient Soldiers and families and focus a lot of thought to how we want to train, man, and equip our Space forces in the future.

Not only appreciating what we're doing today, but taking a good hard look and trying to figure out what we need to look like 10 years from now and trying to be as close to right as we can possibly can. I don't know if we'll ever get

it right, but I can tell you right now we are not postured the way we need to be to keep up with our growing mission areas. I believe the missions of the 1st Space Brigade are going to continue to grow. I believe it will eventually take more than just one Space brigade to do the job in the future. I also believe that as the mission grows it is not too far off from starting some dialogue about the feasibility of an enlisted Space career field to support the growing demands.

SSG Benjamin Sharp

JTAGS Master Gunner, 1st Space Battalion

It's very important to certify our crews. Our crews are the only in-theatre direct downlink element that pushes out theater missile warning and early missile warning to the combatant commanders. Instead of having to wait for missile warning to come in from different elements, the combatant commander has his own direct link into missile warning so he can know what's coming almost instantaneously. They have the peace of mind while the Warfighter is focused on kicking in doors, completing the mission, making sure the fuel and the food gets to the troops. They don't have to worry about theater missile warning because we're on mission 24/7/365.

For the Profession of Arms, when it comes to early missile warning, the main thing that I take from it is that as the over watch for the entire Army we are providing peace of mind so the Warfighters can actually go out and do their mission, accomplish what they need to do, and not be worried about what's going on. They'll always be protected because Joint Tactical Ground Station is on watch. With the improvements in technology and the ever-changing landscape in battle, Space is used by everyone from the lowest private to the highest general. They may not know they're using it, they may not understand they're using it, but Space is everywhere, and as long as we keep putting it out there, providing it to the Warfighter, then we'll keep winning all of our battles.

1SG Robert Pennebecker

1st Space Battalion

We have strategic and tactical elements that are currently deployed all over the world to provide Space-based support enhancement to the Warfighter on the ground. To offer those commanders who are going out into theater an opportunity to say, "Hey, we have these Space elements or support elements that will offer early missile detection, that will provide you that backbone communication system, that will help make an analysis of the Space and the capabilities of the enemy?"

I just want people to remember in the Profession of Arms, we need to remember our Army values. That's what



CSM Larry S. Turner, SMA (RET) Jack L. Tilley, CSM (ret) Ralph Borja and CSM (ret) Frank Mantia discuss the progression of USASMDC/ARSTRAT. Photo by Dottie White

got us here to the point. We need to be honest brokers with the public. Because we work hard, but we also have to earn that paycheck. They rely on us to defend the Constitution of the United States. We must also continue to be professionals, leaders, train our subordinate leaders, train our subordinates to make sure we're all falling in line to uphold the standards of conduct, our Army values, and keep the trust of the American people.

We must go out and advertise what we do, because the whole Army does not know, or our sister services do not know, what we do. And we must advertise to promote, because our theme is to go joint. If we go joint with other services then they know our capabilities. Those commanders will know what we offer and they'll utilize our services.

SFC Charles Mercier Training NCOIC, 1st Space Brigade

As a result of being in constant conflict for ten years, we're involved quite significantly. We've had to adapt to the war on terrorism, Operation New Dawn, Operation Enduring Freedom, and a multitude of different operations worldwide. It's changed the way we do business. We've had to adapt along with the Army. We've had to come up with new ways to engage the enemy, to support those who are directly engaging the enemy, to ensure there is 100 percent mission success as well as Space support to the ground users.

Soldiers need to maintain their craft as riflemen first, that's what we all are. Prior to engaging in our specific technical skill set – whether it comes to warrior battle drills, standard warrior training, weapons proficiency, making sure Soldiers are attending their career progression schools – making sure the Soldiers are maintaining their core skill set, that's essential to every Soldier regardless of their specific skill.

It's essential for us to be technically and tactically proficient. Whether we're supporting combat operations in Iraq from anywhere in the globe, our Soldiers still need to maintain the capability to go downrange and get in the fight. Our brigade is unique; we have a very unique skill set. However, these Soldiers do not spend their entire career here. They'll spend maybe three years, and they might go back into a combatant command, where they'll have to reengage in the specific MOS skill they were taught. So we need to make sure our Soldiers

maintain that tactical proficiency. They're capable of going back into the fight, per se, in their traditional skill set.

1SG William Edwards Headquarters and Headquarters Company 53rd Signal Battalion

Our wartime mission is to basically make sure the equipment sets that we use, that Defense Satellite Communications System certification facility itself and the HHC Company as well as the wideband satellite communications operations centers, meet the requirement in order for the Army to perform the satellite control mission. It reaches not just here in the United States, it reaches across the entire globe. It does not affect just individual entities, but also the Warfighter itself, the ones who are actually on the ground performing their mission either at the forward operating bases or the contingency operating bases or any location that may be an austere environment where they're away from major communication systems. It allows them to communicate back to the higher echelons and provide situational awareness, get permission to do any kind of target acquisition, things of that nature. The Department of Defense, homeland security, any of the joint services, we reach out and touch just about everybody.

The big thing that is really important for us to realize in Space command in general is that the Profession of Arms is not just a Warfighter attribute. It's something that extends across the entire Army as a whole and specifically to us, because if we're not professional at what we're doing and the experts in our field, we don't affect just our local company. It affects everyone from the ground fighter all the way up to the combatant commanders to the President and Joint Chiefs of Staff. All those individuals will suffer if we fail at what we're doing.

I really think we need to focus on maintaining the awareness of what our job does and how it affects the Warfighter, the civilians, the nation as a whole. Because if we lose that focus, then no matter how we set ourselves up in the future as far as how technology goes, we will not be able to support those guys in the way they need, to be able to maintain our national security, as well as assist with international security.





CMSAF James A. Roy speaks to USASMDC/ARSTRAT Senior Enlisted Leaders during the 2011 SELTC.

Photos by Dottie White

AIR FORCE VIEW

The Word from the Top

BY MICHAEL L. HOWARD
& RACHEL L. GRIFFITH

Chief Master Sergeant of the Air Force, CMSAF James A. Roy was invited to the USASMDC/ARSTRAT senior enlisted leaders training conference to offer his perspective on the joint-service environment. His main points understanding the capabilities of other military services and the culture in which the capabilities – along with the actual Soldiers, Sailors, Airmen and Marines – were developed.

Roy agreed to an ASJ interview.

The questions and answers follow. —>



CMSAF James A. Roy speaks to SELTC attendees about the importance of resiliency in the military.

★ Our mission in the military is increasingly joint. What is your basic message to the other services who are working alongside your Airmen?

ROY Joint coalition operations are the way we do things today and will be the way we do it in the future. What I would say, what I would ask of our joint partners as they work alongside our Airmen, is to understand what their capabilities are and use them to that capability. We train our Airmen to be multidimensional, and sometimes you just need to tap into that. They're very, very educated, highly trained, and motivated. They want to do the best mission they can do to the best capability they have, and they will give 100 percent each and every time.

★ What do you see as the biggest challenge?

ROY I would say the largest challenge that we have – and this comes from my years of having spent time in joint communities – is understanding the capabilities of the other services. You have to understand that service first of all. You have to understand that service culture a little bit to understand how those Soldiers, Sailors, Airmen, Marines, and Coast Guardsmen were developed. Once you understand that, you overcome a lot of those obstacles that we've got to work through in order to have what I always call a joint service solution. And that's the key to it. It's not an individual service, it's a joint service solution.

★ Being able to not think like the other service but bring its own culture into that – can you expand on that?

ROY It's something that all of us senior enlisted leaders, advisers for the services, agree to is that our service has its own culture, its own identity, in fact. I've traveled quite a bit around the world and have for the past few years. Even when I was working in a joint community I'd go visiting an army in another country, that army had the same type of identity as our Army did. Even when I visited smaller air

forces, they had that same type of culture. And it's up to us to understand what those are, not to try to change them, but to understand those capabilities that the individual service member brings to the fight.

★ The Army is focusing on the Profession of Arms throughout its force this year. How do you see this from your perspective?

ROY The Profession of Arms is the foundation to what we do as a military service. It's what our nation wants from us and expects from us and quite frankly, that's what they pay us to do, is to be professional at the Profession of Arms. And by doing that it covers a very broad topic. It covers everything from what it is, and as I put it, what kind of experiences we bring to fight, what kind of education we bring to the fight, what kind of training. It also adds in a factor of what I'll call resiliency – being able to work through those tough situations and also bounce back and also grow from it. It's kind of multidimensional.

★ When it comes to Space and Missile Defense, which has a lot of young Soldiers, these issues can easily go from tactical to strategic in a very short time. That's a lot of responsibility to have on these men and women in these technical fields. What are your thoughts?

ROY It's one that again kind of goes back to the Profession of Arms. I believe that our Soldiers, Sailors, Airmen, Marines, Coast Guardsmen are professionals when they graduate from basic training and they go through their MOS training. This idea of strategic corporal, strategic Airman, it can go from a very tactical level decision having strategic value across the world. Our people understand that, and it's up to us, as the senior NCOs, to help mature them in a way that they do understand what decisions they make, how high that will go, and what's the repercussions of those decisions. Not everyone can make that level of decision every day, again



CSMAF James A. Roy discusses the importance of understanding the joint environment.

because of the strategic value of that. Sometimes these decisions get made at the platoon level, at the squadron level and up – you know, the commander in chief. It is a strategic-level consequence to us.



These are not only joint efforts but the interagency as well, as are the overall operations in Iraq. What do you see as the mind-set the enlisted service members need to adopt as we continue in Afghanistan and Iraq to be able to meet these needs?

ROY The foundation of it is being able to work with our joint, coalition, interagency, nongovernmental agency partners, if you will, and that's why they're labeled as partners, because it's a pretty broad spectrum. We've got to be able to work with those partners and understand the capabilities they provide to the overall mission, and how when we all come together we may be working for another agency at certain given times. We need them to understand what kind of capabilities our force brings to it as well.



How would you characterize the caliber of today's women and men in terms of meeting the challenges?

ROY Just as I described earlier, our service members who come to us are very, very highly educated. They come through the training. They're experienced in what we call on-the-job training kinds of thing but beyond that they're also very mature and very motivated. They have capabilities that many of us did not have when we came through. Along with that comes the continual focus on the Profession of Arms. As I say again, it's the idea that those things don't change. It's

the foundation, the fundamentals of the way we do things, that we have to continue to focus on. First-line supervisor or NCO responsibility hasn't changed over the decades, and it will not change. You're still responsible for the mission, you're still responsible for these people who work for you, and that will not change.



You talk about resilience, about the challenges, the stress, even if you're not deployed, you're deployed. Would you say those factors in the resilience part of it are an antidote to protect you from the psychological damages of it?

ROY The best kind of analogy I can give is if you have a rubber ball, sometimes in life, you get squeezed a little bit, but when you let that ball come back, when you release the pressure, that ball bounces back. It's that resiliency we need to make sure our people have. It's also the fact that we need people to continue to grow through those tough times. I think that's what we're all looking for, that's the desired end-state. We know both the service members and their families are stretched. We've been at war for many, many years now. There's a lot of stress on the members and on their families, but it's how we work through that and how we grow through it that matters the most. 

WARFIGHTER VIEW

The Word from the Front

CSM Marvin Hill, the International Security Assistance Force command sergeant major, had arrived in the United States a few days earlier to give a Warfighter perspective to those attending the USASMDC/ARSTRAT annual senior enlisted leaders training conference.

He agreed to sit down for an ASJ interview with Michael Howard, an old classmate from the Army's Sergeants Major Academy and Rachel Griffith, who recently joined the ASJ team.

His answers flowed, but the most telling was in his response to why he continues to Soldier on, responding "this is much bigger than me." Hill felt there was only one answer he could give with GEN David Petraeus, commander of NATO forces in Afghanistan, asked him to continue in the fight. "I often tell people I don't have an itch that needs scratching, but I tell you that you still feel you need it for something as important as this."

The complete interview with Hill follows. [→](#)



BY MICHAEL L. HOWARD & RACHEL L. GRIFFITH



A News reports indicate you're making progress with Coalition forces in Afghanistan. Tell us about the challenges to our military.

HILL The challenge we're facing is one of having an Afghan counterpart that's capable of keeping up. They're capable of building capabilities, but to keep up and sustain that momentum is the challenge. We've built a lot of capacity, and to sustain that pace is going to be a concern. Their challenge is in building the capabilities so that they can take care of themselves – the support and combat service support pieces of their military. For every infantry Soldier in the United States Army, there's probably about five or six Soldiers who support and sustain us. We built an infantry unit in the Afghanistan military, and building the combat service support to sustain it is challenging.

A What is your number-one worry about all that in the long term?

HILL The sustainment of it. If it's not user friendly, it won't be used. We have to make sure we are building something they will use and not just throw to the side and then we lose all the ground that we've gained there. Whatever we provide, it has to be an Afghan solution to the Afghan problem and not a United States solution.

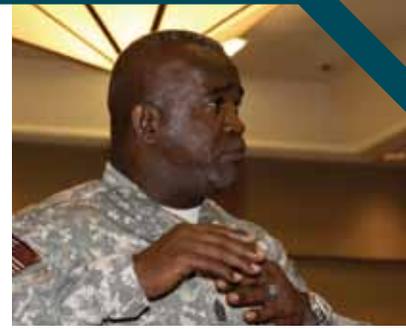
A What is your assessment of the men and women who are being called to the fight today?

HILL I'm not just talking about us here as I've had the great opportunity to be the command senior enlisted leader for the international force, for the Coalition force. The young men and women who are joining our formations now are the best that their countries have to offer. These are young men and women who can do anything they want. Some say the economy is pushing them toward the military. I say different. These are the guys and girls who know their country is at war, and they join. And then while they're over there, they raise their right hand to stay and they reenlist



CSM Marvin Hill, ISAF CSM, is interviewed by Mike Howard, editor-in-chief of the Army Space Journal during the conference.
Photos by Rachel L. Griffith

CSM Marvin Hill discusses how he came to be the ISAF CSM.



by the number. It's incredible knowing there's going to be more of whatever they're getting right now, there's going to be more of it time and time again. More deployments, more time away from family, more hardships.

★ There are people who aren't deployed to Afghanistan or Iraq who are touched by the war. What is the most important thing you'd like them to keep in mind?

HILL Everyone contributes to the fight. You may not be in Afghanistan, but you might be training for Afghanistan and not even know that you're going to be deployed. I would say just stay focused. We have a saying in the Army to keep your powder dry; that's the bottom line. You don't know when that call is going to come. It's the preparedness you have to have. We're paying you to be prepared. I would say just continue to focus and be prepared.

★ Some would say that our nine years of continued fighting has matured our fighting force. Would you agree?

HILL Yes. I mean, we're a very seasoned and very mature fighting force. There are some things that we're not seasoned and matured at – things we have to get after. I don't think we can wait until this is all over because we don't know when this will all be over. We have to get better at taking care of each other. We have to get better at recognizing the signs and symptoms of depression. We have to get better at resiliency. We have to get better at our military and civilian education. We've got to get better at taking care of our families.

★ Those are good examples. What would you say are some tangible examples of us being a mature force?

HILL Our leaders. I mean, we have seasoned leaders. Leadership that can assess situations quickly. Leadership that makes decisions on the spot. Leaders who know how to move the formation. Even leaders who know how to counsel. They might not be doing it formally, but these are leaders who know to pull someone in. We have grown a center of leaders who only know war. At the end of the day you say why do we exist as an Army? Why do we grow leaders? So they can lead troops in combat. That's not a bad thing.

★ You mentioned some of the negative results. What about stress on family?

HILL Families are deployed in place. If you think about it, they're deployed, but they're back at the home station. Every time their service member dons his helmet and dons his gear and gets on that aircraft, they're deployed as well. They're feeling it and sometimes much worse than the Soldier, because they are the ones who are there when the chaplain comes to knock on the door. At that point they're alone. I've been doing these things for a while, and my family's still not used to it. No one gets used to that. It's tough. I salute my Army bride every opportunity that I get, because it's tough for her.

★ So why do you do it?

HILL This is to overuse a cliché – this is much bigger than me. I do this because the President of the United States asked my boss, GEN Petraeus, to step down if you will from his position as the commander of U.S. Central Command and go to Afghanistan to take on that. And there was only one answer he could give. Then GEN Petraeus looked to me and said, "Are you up for another one?" There was only one answer that I could give. I think it's a huge honor to serve. I often tell people I don't have an itch that needs scratching, but I tell you that you still feel you need it for something as important as this. You can't help but feel good about yourself. I have no doubt that there is another Soldier, another service member who can put on this uniform and drive on, accomplish the mission. To have the confidence of GEN Petraeus, you feel confident you're making a difference over there.

I feel I'm making a difference every day. It's like driving a car with a GPS. If you make a wrong turn, that GPS starts giving you all sorts of feedback. It freaks out trying to get you back on track. But when you make a right turn a little ding goes off. I get that ding factor every day that I'm over there. That I'm on right path and that I'm making a difference.

★ Some of the concern areas you were talking about are suicides, post-traumatic stress disorder, ethical and moral use of force, and junior leaders taking on more and more responsibility. Can you give some examples of what the command is doing to address these in place while you're in combat?

HILL That goes to knowing the troops. I'm not simplifying it, I'm just saying when leaders know, when peers know, they can see the differences. They can identify some of the symptoms. It's hard. It's really getting involved deep into the counseling piece and the suicide prevention and awareness

**But when you make a right turn a little ding goes off.
I get that ding factor every day that I'm over there.
That I'm on right path and that I'm making a difference.**

training. And we're talking it over. We're encouraging them to talk openly and freely about suicide. The things that the Department of Defense is doing as far as removing the stigma for seeking help. PTSD, again, we have to after-action report everything we do. And reporting also means talking to the young men and women as they see things that are dramatic, and they experience things that are tougher conditions day after day. Stress training.

And then as far as the young men and women just taking on more and more and more, that's been the key to our success. We only have so many pairs of boots on the ground. We're only allowed to have so many pairs of boots on the ground. The mission and the responsibility keep growing every day. We look at something that we can do better or something that we can be more of. I heard it here in the conference today, where someone said, "Find three more things Soldiers can do every day." That's really the bottom line. We have guys and girls who are really doing two or three missions, and they enjoy doing it. My concern is when they get back to their home stations. I mean, we built the monster that can really do some things, and they multi-task. So how do you nurture that when they get back?

★ You're here to give a Warfighter's perspective to senior noncommissioned officers. What is your key message?

HILL My key message is really going to be about getting the inputs right. For what we're doing in Afghanistan to work, first you have to start with getting the inputs right. Get all the right people, the right resources, the right concepts. We have to get that piece right, the right strategy, and the right command structure. The other thing is about some of the urgent projects and programs that we're working, especially the partnerships that we're working today. They were talking about partnering with nations around the globe. My piece is about partnering with the Afghan national security forces. We call it Shohna-ba-Shohna, shoulder to shoulder. What that truly means my focus as a command senior enlisted leader, some of the things that keep me up at night. What I'm also going to do, at the end, is to challenge them a little bit to help me manage some of the talent that I find over there. I asked Chief Roy, when it comes to the Air Force, how do you get someone prepared to take my place with the amount of time they're allowed to stay in the Air Force? My challenge to them also here in the conference is help me manage that talent. Because I'm going to find it. I'm going to recommend to you,

here's where this troop can serve better and grow. I saw some things in this young man or woman that if nurtured right, is going to grow up quick. I'm trying to get these young men and women where they belong, because, maybe we found an itch while they were over there.

★ What's your advice for Space and Missile Defense NCOs as they continue to provide capability to the forces in Afghanistan?

HILL Keep in mind that if Joe wants that GPS to work, there's protections. Someone has to protect the satellites that are up in Space. We just rely so heavily on intelligence, surveillance, so just protect those things that provide those capabilities, because we use them every day all the way down to the troops on patrol.

★ It's been 14 years since we served at the Sergeants Major Academy. What's your take on the focus of lifelong learning in the Profession of Arms?

HILL I really think for one, I am applying lessons I learned at the Sergeants Major Academy almost every day. I'm glad that when I attended the academy I was open-minded. I don't think the Army would spend this money and time and resources on me for nine months to give me something I'll never use. So I put it all in the bag. It might be Army writing style. It might be conflict management. Or it might be understanding the strategic level of things. It's tremendous. However, I think that the process should still continue. For the most part, if a command selectee doesn't attend this keystone course run by the National Defense University for a command selectee who is moving to a joint task force, the Sergeants Major Academy is the last piece of school. Some leaders get in at the 17- or 18-year mark. With a 32-year career, that's a long time between retiring and your last school. We need to create opportunities to reinforce the lifetime concept of learning. The concept is solid. ★



THE FUTURE OF WARFARE & IMPACT OF SPACE OPERATIONS

BY LTC ROBERT E. BERG

Tomorrow's War – Detection and Attribution

War has changed and continues to change over time. This is not to say that we throw out the old and forget the lessons of the past. Many principles remain the same and can be applied to new forms of warfare. What each warrior and leader tries to anticipate is what the next war will be like. With such knowledge, or anticipation of what is next, leaders can shape and plan for success in the next conflict.

Some of the “next” war is already taking place. As nations enter the world stage through expanded economic and diplomatic ties abroad, they inexorably link their success with the world community. The leading nations of the world are tied in globally. Major economies succeed, in large part, due to global ties. How do these nations come into conflict with each other?

Outright conventional warfare has a greater effect today in the damage caused to the economies of warring parties. Cost of supporting war is high. Cost of rebuilding our modern infrastructure, or theirs, is high. Losses are also due to the obvious and the more subtle economic interlinking between the warring parties. Adverse international opinion and diplomacy effects are additional impacts to consider.

What is actually happening? The leading nations of the world have been avoiding direct conventional conflict with each other. This follows the old mutually assured destruction concept from the Cold War. Large nations are adverse to the negative impact of conventional warfare with a peer

nation. The global economy has put larger chips on the table. Additionally, the incentive for a nation to gain territory through warfare no longer exists as the global community maintains a static view of national territories.

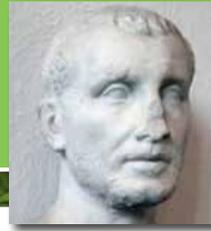
I mentioned that we do not forget the lessons from the past. The Cold War had elements that are being seen today. When outright nation-on-nation conflict has potential for escalating to the unthinkable, other less-powerful means are sought to prosecute the desired effects. Aiding another nation in conflict with your enemy is one means. Espionage is another. Whenever a method is available where the actor can remain hidden, an advantage is achieved in being able to act with impunity. A favorite statement of mine is the old Soviet Union “categorically denying” involvement in some event or crisis. Today we see something similar with a fight being waged in the cyber domain.

We, the United States, have been under daily attack. These attacks may be security breaches in order to test defenses. They may be for purposes of gathering restricted information. They may at times seek to cause disruption, damage, and degradation of systems. The attacks are occurring in the cyber domain. Cyber domain aggressors have a great advantage; they can be difficult to identify. Even when cyber aggressors can be identified, their association with a nation, group, or industry can be difficult to attribute.

There is simple attribution and there is a higher level of attribution. Simple attribution is basic knowledge of connections



Woodcut of Warfare Concepts



“ We ought to live with things in advance, explained as a prefiguring of what is to happen.”

- Posidonius, 135 – 51 B.C.

and likelihood that certain governing parties are responsible. Is the actor linked to commercial industry, a government, or an independent group? Simple attribution possibly can be used in efforts to counterattack and counterstrike via similar means. Higher level attribution is where the connection can be used on the world diplomatic stage. Is there evidence that the suspected group, to whom the actor is linked, is the responsible party? Higher level attribution is needed in order to take effective diplomatic action. For this reason, difficulty of attribution, cyber warfare is occurring as a preferred method of conflict between large players on the global stage.

Smaller players also are using the cyber domain to have impact on the battlefield. Sometimes the existing global network is used as a means of difficult-to-detect communication and coordination. Smaller players also have reasons to avoid conventional warfare and remain hidden. The American military is too strong to stand up to on a conventional basis. Like cyber warfare, small actors use other methods that are difficult to attribute.

“Actors too weak or too cautious to threaten NATO with overt conventional attack may employ jagged methods of assertion. This category of deterrable risk involves an unpredictable variety of pressures, constraints and challenges, sometimes anonymous, unattributable, uncertain or disputed... .”

–Paul Schulte, Strategic Insights, Volume VIII, Issue 4

In Iraq and Afghanistan, we have seen a common theme in the conflicts. Those who fight against us attempt to remain hidden. The individual who places an improvised explosive device attempts to engage us without exposure or identification. Those who aid the individual emplacing an IED do so with hidden networks of support. The IED is an anonymous weapon. Our difficulty in prosecuting such a fight is identification and attribution of those we are fighting against.

Large nations also have become more ethical in prosecuting a war. Collateral damage and civilian casualties have become of greater consequence. Even individual incidents not resulting in physical harm, such as took place in Abu Ghraib, have international impact. We can no longer bomb an entire city to take care of a problem. We cannot employ negative means against a populace. We must seek to target the individuals directly responsible. We must locate an enemy who is difficult to find. We must be able to attribute actions against us to those individuals we target.

The small player has something in common with the larger players in conflicts we are engaged in around the world. In both cases, they have reasons to use means that are anonymous and difficult to attribute. The IED is one such means. Other means include cyber warfare and disruption of Space-based intelligence, surveillance, reconnaissance and communications.

Other means of the future are likely to follow this theme of being difficult to detect and attribute. If we apply this thought to direct kinetic engagement, it is likely to be based on robotics. Already many nations have embraced unmanned aerial vehicles and are working toward ground-and water-based unmanned vehicles as well. As such technology becomes prevalent, it will become easier to use and more affordable for smaller players to use on a large scale. More importantly, as technology used in unmanned vehicles gains greater commercial availability, it will become more difficult to attribute. Physical stealth of unmanned systems and stealth in attribution have the potential to transform physical warfare methods and can be linked to nontraditional methods such as cyber warfare.

Both cyber warfare and insurgent use of IEDs depend upon difficulty in locating the actor and attributing those actions to a controlling cell or entity. Unattributable robotics is a natural progression for both. The prevalence of unmanned vehicles is likely to enable future warfare using unattributable robotics. Unmanned vehicles are leading in development of the technology necessary for this next step in progressive use of robotics. The large actor gains “plausible deniability,” and



the small actor remains difficult to locate. Some of these systems are being seen in development around the world such as power-line creeping robots, snake robots, and others in addition to the now common UAV. Robotics, like cyber warfare, is another way that the fight of the future can be waged in a difficult-to-attribute method.

What does all this mean for the military? For one thing, there are many players other than the military. Corporate organizations, state-run intelligence offices, political groups and others are in the cyber fight and will be able to step into other methods of fighting their battles while remaining hidden. Traditionally, militaries fight militaries or guerilla forces or insurgents. Now warfare is taking place on new battlefields with new objectives (yet linked to traditional goals). If a cyber attack targets a commercial corporation, does the corporation fight back or does a military force? There is likely a need for greater cooperation between the military, the commercial world, and the political and economic arms of the government as warfare progresses to operating primarily in new territories.

“A U.S. military response to espionage or crime would be a strange departure from international norms regarding the use of force. A retaliatory cyber attack (where the intention is to damage or to destroy, rather than exploit) or retaliation using a kinetic weapon for a cyber attack against countries that have not used force against us or against individuals with criminal rather than political aims, could easily be interpreted as an aggressive and unwarranted act by the international community. The result is to cast doubt on the credibility of a retaliatory threat, weakening any deterrent effect.”

– James A. Lewis, Cross-Domain Deterrence and Credible Threats, July 2010

What are the primary keys in this fight of the future that we have begun to engage? Detection, location, and attribution are fundamental requirements that enable the fight to take place through targeting and effects. We are good at targeting, and we can create many useful effects. Effects on new battle-grounds such as in cyberspace are being pursued aggressively around the world. The great difficulty remains in detection, location, and attribution of the enemy. Primary keys in detecting, locating, and attributing can be found in cyber warfare methods and in Space-based assets. The military has stepped up to the plate in creating a U.S. Cyber Command and standing up service components to that command. Space-based

capabilities also continue to be a growth field that is needed as a primary key for tomorrow’s war.

Space in Tomorrow’s War

Military dependence on Space has grown tremendously. The peaceful nations and peoples of the world are also gaining greater dependence on Space. Soldiers rely on satellite-based navigation (as does the civilian populace of the modern world). Communications in remote regions are enabled through Space-based assets. Military timing is enabled through Space as are financial transactions around the world. Warning of missile threats, with such quickness to allow reaction in the scant time available, is possible through Space-based assets. We have many dependencies that have developed on Space and for good cause. Space-based assets provide keys in prosecuting the fight of the future.

Military planners are now adverse to any type of collateral damage; precision munitions are a key player in limiting collateral damage. These precision munitions are enabled through Space-based assets. The nature of ethical warfare has led in part to a dependence on Space for this precision. With a world integrated on a political and economic level, further refinement of what is ethical in warfare is likely to continue. Precision capabilities of weapon systems will likely remain a primary need in future conflicts.

Space enables our military in a way that greatly reduces the requirements for ground-and air-based systems and manpower. We hunt individuals and cells that do not show themselves as a regular, recognizable military. Space-based platforms can cover large areas in identifying, locating, and attributing. Space-based intelligence across the spectrum (such as signal, infrared, visible, radar, and multi-and hyper-spectral imaging) is a critical enabler in hunting the enemy. We see Space providing tipping and cueing in multiple areas. Without the tipping and cueing provided, the search would be intensive and likely often fail to produce timely results. Missile warning, geo-location, Joint Friendly Force Tracking, interference identification, Space situational awareness, and more are linked to intelligence requirements and situational awareness needs.

Moves are being made toward more automated analysis of Space platform data. Analysis by individuals only targets a focused area that has been identified as being of interest. Data fusion and correlation across multiple areas is time and manpower intensive unless it can be automated. Being without these Space and automated capabilities would require massive amounts of ground forces, a larger quantity of airborne platforms, and large numbers of analysts to meet the need. If we wish to continue to be capable in handling large landarea missions with small amounts of forces, the intelligence aspects provided by Space and automated analysis will continue to be critical.



Crowded Low Earth Orbit

What is the future conflict? We are partly in it. Our conventional forces cannot be matched by our typical opponents. There is a continuing integration of nations economically and politically on a global level. Those who are our peers avoid conventional conflict with the United States as do we do with them. Our enemies, and friendly competitors, resort to non-conventional means. Identifying and locating our targets (individuals, cells, sources, etc.) has become more difficult. Space has become a key player in target identification that cannot be supplemented without large increases in ground and air-based assets and associated manpower. Precision engagement is ethically critical and enabled by Space. We will likely continue to see the same difficulties and need for capabilities of Space-based assets in the future.

Across the full spectrum of operations such as major combat operations, humanitarian assistance, countering weapons of mass destruction proliferation, and homeland defense, the same Space-based capabilities provide needed intelligence or critical information about the situation. These operations are often likely to involve even fewer forces on the ground or limited ability to use airborne assets, leading to Space once again meeting the need.

With the great capability that Space provides, enemies will see our Space assets as key targets. The dependency on Space-based assets also creates a need to provide for the defense of these assets and their capabilities. There are antisatellite missiles, laser systems, and electromagnetic jamming threats to satellites on orbit. There are capabilities such as GPS jamming that deny a Space-based capability in a local terrestrial area. The possible threats are highly varied. So, what areas should be concentrated upon?

Looking back at the global integration of nations on an economic and political level, nations that have the capability to physically destroy an object in Space are likely to avoid such action. Space provides them capabilities at multiple levels that would harm their economic well-being if lost. For major nations, low earth orbiting satellites are easy targets. Attacking these targets is similar to the concept of mutually assured nuclear destruction in that we each hold the entire LEO belt hostage. The region is highly crowded with satellites and debris. A few destructive strikes could set off what is known as the Kessler Syndrome, a domino effect of destruction in Space caused by a chain reaction of millions of pieces of debris colliding with satellites at velocities faster than the fastest bullets. International repercussions are also likely as the world on a whole depends more and more upon satellite

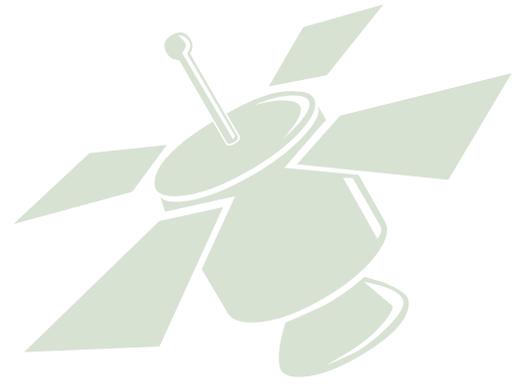
systems. For these reasons, nations are likely to endeavor to use effects that do not cause debris.

Such nondestructive effects are being seen today. International news sources last year reported Iranian jamming of BBC and Voice of America satellite broadcasts. The cost to conduct such jamming is minor compared to the high cost of a direct ascent antisatellite missile or an orbital platform that could cause disruption. Not only are individual unit costs low for ground-based systems that provide temporary and reversible effects, but those systems are also based on known technology with little to no development needed. An example of how low cost and simple satellite interference from the ground can be is exemplified in an individual case, John R. MacDougall, a.k.a. Captain Midnight, who jammed HBO broadcasts in 1986. These jamming effects are typically nondestructive and reversible, making them less likely to be of concern to the international community. The effects also can be difficult to identify, locate and attribute, creating opportunity for actors to operate with greater impunity. In future conflicts, of both limited and larger scale, we are likely to need strong capabilities to identify, locate and attribute temporary and reversible interference and disruption of our satellite systems.

Our dependence on Space has increased greatly as a military, as a nation and as a global community. The capabilities to identify, locate and attribute provided by Space are critical in prosecuting future wars. For ethical reasons, we rely on Space for precision engagements. Space provides navigation, tracking, communications and warning to the global community and the military. Conflict in Space is likely to follow the methods being used in cyber warfare in that the actors seek to remain hidden or difficult to positively attribute. Warfare in general is apparently moving in this direction of anonymity. Our nation must assess how these future global conflicts, economically and politically integrated with the world, will be fought. We as Space professionals do our part in attempting to foresee how Space will play a role. 



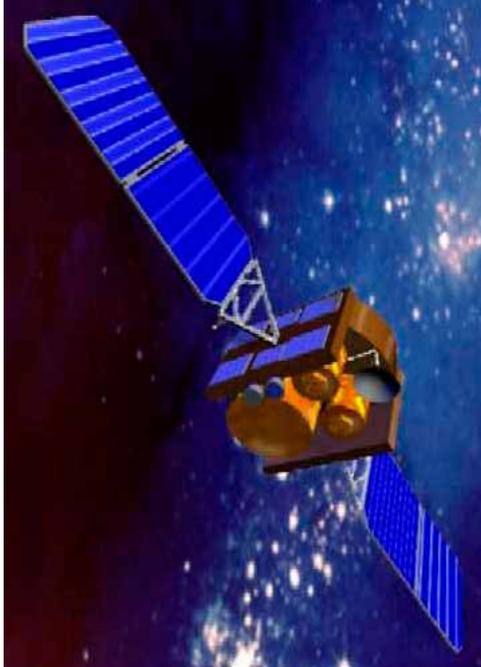
LTC Berg works in the Directorate of Training and Doctrine with the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. His last assignment was at the Johns Hopkins University Applied Physics Laboratory where he worked on multiple projects, including a disruptive innovation team where he wrote a white paper on stealth robotics initially exploring some of the concepts in this article.



CAN YOU HEAR ME NOW

We Control the High Ground USASMDC/ARSTRAT and Satellite Communications

BY SHARON WATKINS LANG



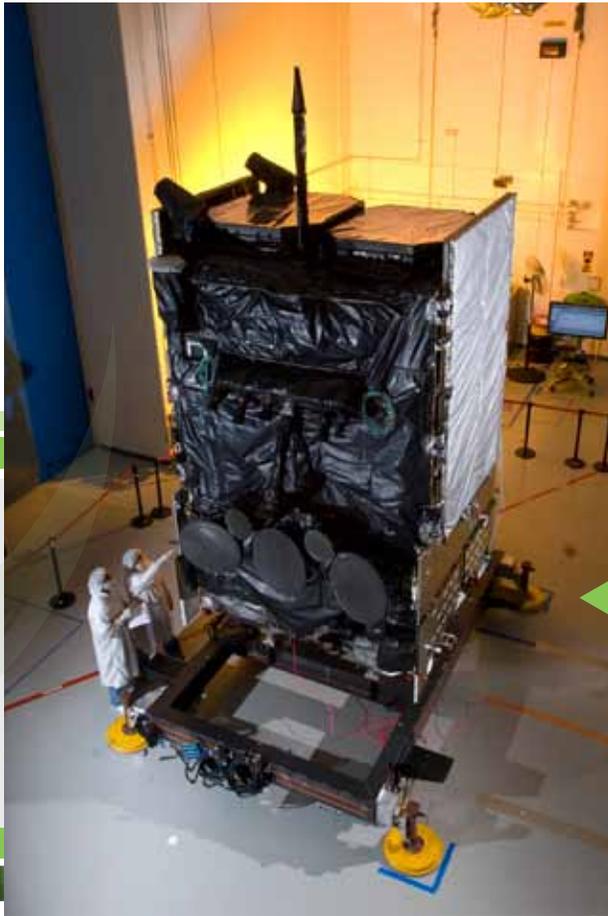
First launched in 1982, the DSCS III satellites weigh 2,580 pounds and already exceeded their life expectancy of ten years. The rectangular body measures 6 feet X 6 feet X 7 feet and its solar arrays create a 38 - foot span.

Courtesy photo U.S. Army

In June 2010, the U.S. Army Signal Corps marked a significant milestone – its 150th birthday. While only a fraction of the age, the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command’s 53rd Signal Battalion has a long tradition of providing satellite communications support to Soldiers and the nation. The two organizations can trace their parallel history back to the early 1960s and the Initial Defense Satellite Communications System.

The Signal Corps’ ties to Space date back to January 1946 and Project Diana, which successfully bounced a signal off the moon proving that sound waves could travel through the atmosphere and Space in both directions. Over the next two decades, the Signal Corps worked to develop a variety of communications satellites. At the same time, however, its role was diminishing.

In 1958, the Advanced Research Projects Agency, a Department of Defense agency which oversaw the research and development projects, tasked the Air Force and the Army to develop an equatorial synchronous satellite communications system. The Air Force would oversee booster and spacecraft development, while the Army was responsible for on-board communications elements and ground-control. In February 1959 the Secretary of Defense transferred additional duties from ARPA to the Army – communications satellite management. In 1960, the DoD combined these three projects into the single Project Advent, which was assigned to the Army. Progress with Project Advent was not productive and it



WGS is the DoD's highest-capacity satellite communications system. Each WGS satellite can route 2.1 to 3.6 Gbps of data -- providing more than 10 times the communications capacity of the predecessor DSCS III satellite.

Courtesy photo U.S. Army

was terminated in May 1962.

Nevertheless, with developments in both communications and missile technology, the Army realized a need to address the requirements for world-wide satellite and missile ground tracking stations. The first step was the modernization of the Army Command and Administrative Network. After addressing the short-term with support from commercial communications, the Signal Corps began to plan a new Universal Integrated Communications System. Using high-speed computers, the UNICOM would provide greater speed and security for voice, teletype, digital, facsimile, and video communications.

Meanwhile, in May 1960, the DoD established the Defense Communications Agency uniting the three services to operate and manage a new Defense Communications System, which included the ACAN.¹ Described as a worldwide, long-haul system, the DCS would provide secure communications for the President, the Secretary of Defense, the Joint Chiefs of Staff, government agencies and the military services.

Satellite Control and the Signal Corps

In 1962, the Secretary of Defense authorized a new satellite proposal. The Initial Defense Satellite Communications Program called for a series of randomly located medium-altitude, small, non-stabilized satellites. In this case, the Air Force was assigned responsibility for the development of the spacecraft and communications payload and satellite operations. The Army role was

limited initially to the ground communications segment, overseen by the newly developed Army Satellite Communications Agency.

At the same time an Army - wide restructuring brought further changes to the Signal Corps. These ultimately resulted, in March 1964, with the responsibilities of the chief signal officer being incorporated into a newly established major command – the U.S. Army Strategic Communications Command. The STRATCOM missions included management of all long-distance Army communications and the engineering, installation, operation and maintenance of the Army portions of the DCS.²

In 1973, STRATCOM became the Army Communications Command, a move thought to reflect more accurately its broad range of missions. The responsibilities of the ACC ranged from “providing communications within Army posts, camps, and stations to signaling across the continents with satellites.” The ACC also oversaw civil defense communications and management of air traffic control at Army airfields. The following decade saw a tremendous increase in information systems and communications. These developments would have a direct impact upon the ACC. Army Chief of Staff General John Wickham, Jr. ultimately combined five information-related functions (communications, automation, visual information, publications/printing, and records management) into the Information Mission Area. Oversight was assigned to the ACC, renamed the Army Information Systems Command

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The fourteen satellites of the DSCS III constellation represent as described by the Air Force “the backbone of the U.S. military’s global satellite communication capabilities ... providing nuclear hardened, anti - jam, high data rate, long haul communications to users worldwide.”



Until recently, the five companies of the 53rd were located at Fort Detrick, Maryland; Fort Meade, Maryland; Landstuhl, Germany; Camp Roberts, California; and Fort Buckner, Japan, the sites of the DSCS Operations Centers.
U.S. Army photos

in May 1984. The role of the IMA was “to provide the commander the information he needed to make accurate decisions and the ability to put them into effect once they were made.”³ Included in this mix was the responsibility for the satellite ground stations.

Defense Satellite Communications System

As technology continued to evolve, operations in Vietnam contributed to increased interest in satellite capabilities. Communications were tenuous as undersea cables did not extend to Southeast Asia and radio communications were unreliable in the tropical atmosphere and high frequencies were easily jammed.⁴ In the early 1960s three SyNCOM satellites were launched into geosynchronous orbit. These experimental satellites, with a one-year design life, were quickly brought into service to address these requirements. A SyNCOM ground-terminal was installed in Vietnam in August 1964 and provided one telephone and one teletype circuit to Hawaii. System improvements soon produced one telephone and 16 message circuits between the combat zone and Hawaii.

Following a program realignment, which eliminated the medium-altitude system in favor of a near-synchronous equatorial satellite configuration, the first seven IDSCP satellites were finally launched in June 1966. Despite problems with the boosters, 26 satellites were placed in orbit by June 1968. These satellites were managed by 36 fixed and mobile ground terminals for the newly renamed Initial

Defense Satellite Communications System. Originally designed for Project Advent and used to support NASA’s SyNCOM, two ground stations, one at Camp Roberts, California, and the other at Fort Dix, New Jersey, began to process IDSCS data soon thereafter. Additional ground terminals were located in Colorado, Hawaii, West Germany, Ethiopia, Guam, Australia, Korea, Okinawa, the Philippines, South Vietnam and Thailand.⁵

Given the situation at the time in Vietnam, the IDSCP was used to establish a link between Vietnam and Washington, D.C. In this experiment, digital data was sent to Hawaii via one satellite and then relayed to Washington on another. Declared operational in 1968, the system was again renamed and became the Defense Satellite Communications System, Phase I. Designed with a single omnidirectional antenna, the DSCS I satellites could carry either two high quality or five tactical quality voice circuits between two ground stations which enabled continuous communications at distances up to 10,000 miles apart.

Although more productive than existing radio and cable communications, these initial satellites had limited channel capacity, user access and coverage. Authorities also expressed concern about command and control vulnerabilities.⁶ The new DSCS II design, comparable to the previous Advent program, would incorporate secure voice and data circuits as well as greater channel capacity and other protective features. In addition, with the two-dish antenna, the ground control could



Casing of the Colors – 14 October 2005 — The 1st SATCON Battalion was redesignated the 53rd Signal Battalion (SATCON). The 53rd Signal Battalion was first activated in 1941 for the duration of World War II. It was reactivated in 1954 and remained on active duty until 1971.
U.S. Army Photo

concentrate the satellite’s electronic beams on small areas of the Earth to intensify coverage as needed. The constellation design called for four geosynchronous satellites with two orbiting spares. The phase began in 1964 with the first launch occurring in November 1971 and DSCS II was declared operational. Operational control remained unchanged. Overall system management rested with the DCA, while the Air Force controlled the Space segments and the Army the ground terminals. To support these satellites constructed with four channels with many combinations of bandwidth and antennas, STRATCOM modified the existing 29 IDSCS ground terminals and constructed additional medium and heavy mobile and shipboard terminals. Despite launch failures and other technical difficulties, “by the early 1980s the DSCS II constellation would not only fulfill global, strategic communications requirements through 46 DSCS ground terminals, but would also link the Diplomatic Telecommunications System’s 52 terminals and the Ground Mobile Forces’ 31 tactical terminals.”⁷

The fourteen satellites of the DSCS III constellation represent as described by the Air Force “the backbone of the U.S. military’s global satellite communication capabilities ... providing nuclear hardened, anti-jam, high data rate, long haul communications to users worldwide.”⁸ The first DSCS III launched in October 1982 equipped with 61 receiving antennas and 19 transmitters could conduct 1,300 simultaneous voice transmissions, and

the technology continued to improve. To support the increased activity, especially in support of the small, transportable, and shipboard terminal users, the later DSCS III satellites “were enhanced to improve their communications capacity by 200 percent, with up to a 700 percent increase in capability to tactical users.” The DSCS III have been the linchpin of military communications as evidenced from Operation Desert Storm to the current operations in Afghanistan.

To meet these new requirements, on the ground obsolete ground terminals were replaced and the program began to transition the entire system from analog to digital transmissions. The new system would also permit real time configuration and command control with alternations made at eight net-9 control ground terminals across the globe. Further improvements were planned with the addition of five fixed and six mobile operations centers. A product of this reconfiguration, the DSCS Operations Centers were responsible for two of the three aspects of satellite control – control of the communications payload and control of the communications network.¹⁰ Payload control refers to control of the antenna pointing directions, coverage patterns and configurations for nulling jammers. Network control, which encompasses theater and global telephone, data, message traffic and e-mail service, meanwhile is “the technical management of the DSCS radio frequency spectrum – its power, bandwidth, and frequency allocation.” In addition, in coordination with the

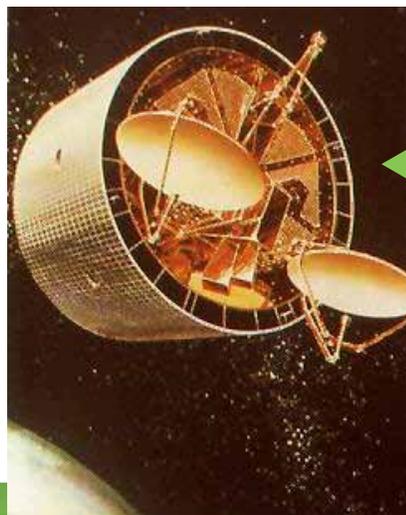
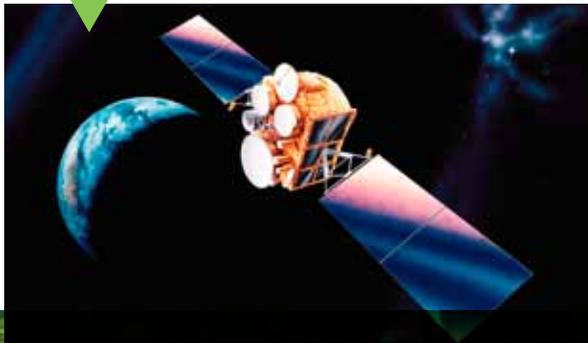


This distinctive unit insignia was first approved for the battalion in January 1942. The motto was added in June 1967



The logo of the 1st SATCON Battalion, the first battalion in Army history with an operational mission directly tied to the control of space systems and capabilities.

The first DSCS satellite was launched in June 1966, from Cape Kennedy, Florida. Launched in groups of eight, a full constellation of 26 of these small 100-pound satellites were put into orbit.



The much larger DSCS-2 had a capacity for 1,300 two-way voice channels or 10 million bits of digital data per second. The cylindrical DSCS-2 measured nine feet in diameter and 13 feet in height and weighed a total of 1,300 pounds, U.S. Army Photos

Footnotes

- ¹ At this time the ACAN is renamed the STARCOM or Strategic Army Communications Network. STARCOM remained under the operational control of the Signal Corps.
- ² As the Army's overseer of the strategic/ long-haul communications system, they provided support to (1) five major sub areas with sub-area units including operation and maintenance of ground satellite communication facilities (2) National Capital Area with Joint Support Command; (3) U.S. Air Defense Command with STRATCOM Air Defense Signal Group; (4) Civil Defense Communication; and (5) Non-defense national communication.
- ³ Brenda Raines, *Getting the Message Through*, p. 399.
- ⁴ *Ibid.*, pp. 360-374.
- ⁵ David Spires, *Beyond Horizons A Half Century of Air Force Space Leadership* (Washington DC: Government Printing Office, 1998), pp. 140-141. The two fixed sites were equipped with AN/ FSC-9 terminals with 60-foot diameter antennas. Mobile terminals included seven AN/TSC-54 terminals with 18-foot antennas, thirteen AN/MSQ-46 terminals with 40-foot antennas. The system also included six six-foot ship-based antennas.
- ⁶ *Ibid.*, 142.
- ⁷ *Ibid.*, p. 143.
- ⁸ U.S. Air Force Fact Sheet, "Defense Satellite Communications System, (Undated).
- ⁹ Donald H. Martin, "A History of U.S. Military Satellite Communications Systems," Crosslink. <http://www.aero.org/publications/crosslink/winter2002/01.html>.
- ¹⁰ Keith Bombaugh (CPT), "Satellite control via the DSCSOC", *Army Communicator* (Fall 1985): 17. The Air Force is responsible for the third phase – control of the spacecraft.
- ¹¹ The Regional Space Support Centers would be collocated with the Defense Communications Agency in Washington DC, Wheeler AFB, Hawaii, and Vaihingen, Germany.

Regional Space Support Centers, they arrange satellite access authorizations which "define who and when access to and use of the satellite will occur."

DSCS Transitions to Army Space

The U.S. Army reemphasized its interests in Space in 1986 and established the Army Space Agency, the Army component to U.S. Space Command. 1986, however, would be a pivotal year in the history of Army Space and DSCS. In July, GEN Robert Herres, Commander-in-Chief of the U.S. Space Command, recommended to GEN John Wickham, Chief of Staff of the Army, that the Army take a more active role in Space. GEN Herres particularly noted that DSCS III control should be given to the ASA. In response the ASA assumed operational and maintenance responsibilities for the DSCS Ground Mobile Forces Satellite Communications and MSQ-114 satellite communications control system functions. The Joint Chiefs of Staff Memorandum of Policy 178, dated September 1986, formalized this transfer when it assigned platform control and payload execution to CINCSpace, with O&M control of all seven DSCS Operations Centers to be given to ASA.

In response to this guidance, the U.S. Army Information Systems Command and the ASA developed a plan to transfer the DSCS mission. In January 1987, the DSCS Command and Control concept was outlined. The chain of command as recommended above ran from the Joint Chiefs of Staff through the U.S. Space Command to the Army Space Agency. The Defense Communications Agency, however, retained technical direction at this time. The MILSATCOM Command and Control Concept (MJCS-11-89), released one year later in February 1988, also aligned the DSCS

Operations Control System under CINCSpace to the ASA. The control system at this time included the GMFSC-Regional Space Support Centers, 11 DSCS Operations Centers/MSQ-114, and Contingency DSCS Operational Control System.

Meanwhile change was coming to the ASA. On 7 April 1988, the Army activated the U.S. Army Space Command, as the new Army component to the U.S. Space Command. The general order creating this new organization stated that ARSpace was to provide an Army perspective in planning for Department of Defense Space system support to land forces and strategic defense operations. Later that year, ARSpace's GMFSC managers formally activated the RSSC planning and management cells. These would support the unified and specified commanders with GMF access on the DSCS. Finally, in February 1989, the U.S. Army Information Systems Command and ARSpace completed the memorandum of understanding by which the remainder of the DSCS mission and personnel would transfer to ARSpace. Effective 1 October 1990, the ARSpace assumed control of the GMFSC centers, AN/MSQ-114.¹² The ARSpace would gain 241 positions and an additional 103 support spaces created based upon the increased ARSpace missions.

In August 1992, the Army again reorganized to provide better Space management. Although the ARSpace became a subordinate command in the merger with the U.S. Army Strategic Defense Command, Army Space now had a voice at the three-star level. Among the six missions specifically listed in the General Order creating the U.S. Army Space and Strategic Defense Command was the requirement to command the Defense Satellite Communications System Operations Centers



DSCS III satellites weigh 2,580 pounds and already have exceeded their life expectancy of ten years.
U.S. Army Photo

and manage joint tactical use of these resources.

The Directorate Becomes a Battalion

The demands for tactical Space support grew exponentially following Operation Desert Storm—the first “Space War” – and the concurrent evolution towards a force projection Army. As the 1st Satellite Control Battalion observed in a 1996 article in *Army Communicator*, “You can’t reach home without us!” In five years, the tactical requirements for the DSCS system had grown from under 400 missions in 1990 to over 1,600 in 1995.¹³ This number has only continued to grow with the advent of new technologies, increased deployments and support to other missions, to include drug interdiction programs

Essentially a Table of Distribution and Allowances organization, the ARSpace organization aligned personnel in offices and directorates according to their functions. The group that oversaw the DSCS was assigned to the Directorate of Military Satellite Communications or the MILSATCOM Directorate. Efforts to regularize the structure were realized on 4 April 1995, when ARSpace received approval to form a new battalion – the 1st Satellite Control Battalion. As today, the companies were organized according to location. The Fort Detrick, Maryland, DSCSOC Detachment became A Company; Fort Meade, Maryland, DSCSOC Detachment – B Company; Landstuhl, Germany, DSCOC Detachment – C Company; Camp Roberts, California, DSCSOC Detachment – D Company and recently completed Fort Buckner, Japan, DSCSOC Detachment¹⁴ – E Company. Effective 1 May 1995, the 1st SATCON Battalion became the first battalion

in the history of the Army with an operational mission directly tied to the control of Space systems and capabilities.

The current configuration traces its history to 2002 and the initial approval of a Modified Table of Organization and Equipment structure for Army Space units. The design for the 1st SATCON Battalion was approved in 2003, bringing with it significant changes. Effective 15 October 2005, the 1st SATCON Battalion and its companies were formally inactivated. One day later its mission, functions, personnel etc. were activated as the 53rd Signal Battalion¹⁵ and assigned to the 1st Space Brigade (Provisional). As BG Jeffrey Horne, the USASMDC/ARSTRAT Deputy Commanding General – Operations, noted during the ceremony, “The Army formally recognizes the unit’s operational warfighting mission. Soldiers in this battalion make vital communications happen for our civilian leaders and joint Warfighters.”

Where Do We Go from Here?

The technology continues to move forward and the Wideband Global SATCOM satellites are currently being deployed to replace the DSCS. A single WGS can provide services comparable to ten DSCS satellites. Already three WGS are in orbit. In February, the 53rd celebrated the official opening of the Wideband Satellite Operations Center in Wahiawa, Hawaii. This prototype facility will replace the DSCSOC at Camp Roberts. As the technology continues to evolve, the mission for these Soldiers remains the same. To paraphrase their motto, they control the high ground. 

Sharon Watkins Lang is the Historian for U.S. Army Space and Missile Defense Command.

- ¹² The Ground Mobile Forces Satellite Control Centers, AN/MSQ-114 were located in Worms, Germany, Fort Detrick, Maryland, Torii Station, Japan, and Tobyhanna Army Depot, Pennsylvania.
- ¹³ Another source observes that nearly 90 percent of all military oversees communications travels through space.
- ¹⁴ The Fort Buckner DSCS OC officially opened on 14 May 1993.
- ¹⁵ The new 53rd Signal Battalion (SATCON) is authorized the lineage of the original 53rd. The 53rd Signal Battalion was authorized by the Regular Army in October 1927, but activated until June 1941 at Camp Bowie, Texas. During World War II, the 53rd participated in “Operation Torch” in November 1942 and landed in North Africa as part of the II Corps, 5th Army – the first Signal Battalion to enter combat in the European/African Theater of Operations. They served in Algeria and Tunisia before joint the assault landings of the Sicily campaign and moving up the Italian peninsula. At the end of the war, the 53rd was inactivated on 30 September 1944 at Leghorn, Italy having received a Meritorious Unit Citation for its service. Reactivated in September 1954, the 53rd served at various locations to include Fort Hood, Texas and Fort Huachuca, Arizona and Germany during the Berlin Crisis. While two companies were deactivated in 1965, the rest deployed to Vietnam in May 1966. Stationed at Long Binh they served as a communication and combat photo unit and manned a radio relay station. Soldiers from the 53rd helped defend the perimeter during the 1968 and 1969 Tet Offensives and provided radio/teletype teams to any II Field Force unit conducting combat operations. The 53rd remained in Vietnam until 1970 when it redeployed to Fort Lewis, Washington. The unit was then deactivated in June 1971. For their Vietnam service, the unit received three Meritorious Unit Commendation streamers.

SPACE & CYBERSPACE:

The Overlap and Intersection of Two Frontiers

BY JAC W. SHIPP

Key Areas of Intersection

- Space, like cyberspace, is a warfighting domain.
- Both domains are information-centric and information-enabled.
- Both Space and Cyber superiority support information superiority.
- Both Space and Cyber operations enhance situational awareness.
- Space capabilities enable, and may be enabled by the conduct of, cyberspace operations.
- Space capabilities are employed in the extension of the Army's portion of the GiG-LandWarNet, particularly in support of deployed forces.
- Space capabilities, particularly space control capabilities, are employed to deliver Cyber Attack and Exploitation payloads to our adversaries, systems and networks.

The pace of change and level of effort has increased dramatically with respect to operations in Space and Cyberspace, with both of these domains increasingly being influenced by multiple actors with access to the information environment. What is needed in supporting this trend is up-to-date thinking and dialogue about how the Space and Cyberspace domains and their operations overlap and intersect, and the synergies and opportunities created by each. Our journey involves the examination of Space and Cyberspace definitions and analyzes specific aspects to promote understanding of Space and Cyberspace. These areas are situational awareness, operations, training and leader development, capabilities development and acquisition. Our focus is on the discovery of ways to prepare our Nation's leaders — public and private sector — on ways to leverage these domains to advance our Nation's interests by improving integrated Space and Cyberspace support to full spectrum operations.

Key Definitions and Insights

Space and Cyberspace Domains. The Space domain is “a medium like the Land, Sea, and Air within which military activities shall be conducted to achieve US national security objectives.”¹ The Cyberspace domain is a “global domain within the information environment consisting of the interdependent network of information technology infrastructures, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers.”² From these definitions we conclude each is a global warfighting domain where distinctive Space and Cyberspace military activities are conducted. Both generate effects in and through their own domains, and across the other domains (e.g. Air, Land, and Maritime). Both domains are information-centric and information-enabled and both advocate Space and Cyberspace superiority goals in support of domain and information superiority. These domains share networked systems and associated physical infrastructures. The primary objective for each is to ensure friendly freedom of action and as necessary deny adversary freedom of action, suggesting common elements for strategy development. Space and Cyberspace are the newcomers to the realm of warfighting domains, and as such have yet to be fully understood, exploited and integrated

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The key area of intersection between Space and Cyberspace

Situational Awareness is represented by the tools - technologies

- techniques employed to support visualization of the situation

into military operations. Their respective operational architectures reflect considerable interdependencies, that is, an effect in one domain can have immediate and far reaching consequences in the other. The interconnected and highly technical nature of Space and Cyberspace has led to a specialized training and career force approaches which has resulted in limited leader awareness, slow progress in Space and Cyberspace planning, and a less than desired level of joint and Army integration. A summary insight is that the Space and Cyberspace domains demonstrate more similarities than any other domains, offering many opportunities for cooperative and synergistic efforts. Our journey will explore a few of those opportunities.

Space and Cyberspace Operations. Space operations are comprised of the following mission areas: Space force enhancement, Space support, Space control, and Space force application.³ Cyberspace operations include the “employment of Cyberspace capabilities where the primary purpose is to achieve objectives in and through Cyberspace. Such operations include computer network operations and activities to operate and defend the Global Information Grid.”⁴ Both Space and Cyberspace operations require, and simultaneously enhance situational awareness; the speed of Space and Cyberspace activities demands timely and precise situational awareness. The operational framework and Concept of Operations for Space and Cyberspace are amazingly similar. Both rely on specialized intelligence and data fusion to enable a level of situational awareness that supports timely operational decisions and action. Each is heavily dependent on global connectivity, a support component (e.g., satellite operations for space, and forensics for cyber), and active and passive defensive measures. And both Space and Cyberspace operations depend on an offensive operations arm (space control and NetWar) to deny adversary freedom of action as required. Space capabilities enable, and may also be enabled by the conduct of, Cyberspace operations. Likewise, Cyberspace operations enable Space operations and are clearly enabled by Space capabilities. Many Space capabilities are employed in the extension of the Army’s portion of the GiG-LandWarNet, particularly in support of deployed forces; an example is the dissemination of mission warning data initiated at space-based infrared sensors and disseminated via theater broadcast means and the Joint Tactical Ground Station platforms. Space capabilities can be employed to facilitate Cyberspace attack and exploitation data from systems, networks and device level activity. Space platforms and their attending links and ground systems are used to communicate friendly Cyberspace information both to defend and maintain situational awareness of those systems and networks. Cyberspace operations may also be employed to enhance the Army’s ability to dominate Space through the

delivery of Cyberspace capabilities to adversary Space platforms and their supporting networks. These similarities in the framework and conduct of Space and Cyberspace operations suggest synergies and efficiencies that can be achieved in developing, employing and integrating Space and Cyberspace capabilities and operations.

Intersect and overlap. It then becomes relevant to explore whether the Space and Cyberspace domains, and their associated operations intersect or overlap. To Intersect is defined by the 2010 Oxford English Dictionary as follows: inter-between secure to cut - to divide something in two by passing through or lying across (1412-Chronicles of Troy) Oxford p. 1137. An overlap is defined as a partial superposition, or coincidence (1813-Agricultural Survey of Galloway) Oxford p. 1096. As we examine the discreet components of each domain and operation we see that both occupy discreet and distinct points in time and place. A router in Space facilitating the flow of data across the Internet, GIG, or LandWarNet is overlapping the Space platform hosting its payload. The data passing through the router is intersecting the Space platform for a brief period of time. The employment of offensive Space capabilities to support the delivery of offensive Cyberspace tools creates an operational intersection. Both terms, then, seem equally applicable in different and distinct ways.

Insights into Areas of Space and Cyberspace Convergence

While there are many areas of convergence in planning, coordinating and executing Space and Cyberspace activities across both the operational and institutional Army, four specific areas are highlighted here: situational awareness, operations, training and leader development, and capability acquisition. Each has far reaching implications across Doctrine Organization Training Materiel Leadership Personnel Facilities⁵ in terms of efficiencies by leveraging commonalities that exist between Space and cyber. Within situational awareness we see the potential for development of a single set of tools, technologies, and techniques that support visualization of the friendly and adversary Space and Cyberspace situation to empower situational understanding and decision-making. Within Space and Cyberspace operations there are opportunities for synergy in concept and Concept of the Operation development, inter-service crosstalk and coordination, and offensive and defensive integration. Within Space and Cyberspace training and leader development there are opportunities and potential cost savings to be found in identifying who, where, and how that training is conducted, and in how we manage Space and Cyberspace professionals. Finally, within capability acquisition synergy may be created between Space



- Space platforms and their attending Ground Systems are used to communicate friendly Cyber information both to defend and maintain situational awareness of those systems and networks.
- High Altitude Long Endurance platforms provide another means to accomplish many of the same tasks performed by Space capabilities, but provide capabilities in areas where more responsive and persistent coverage is needed.

and Cyberspace in how we incentivize the private sector to participate, and how we develop and sustain supply chain security.

Space and Cyberspace Situational Awareness

The U.S. Army Capstone Concept (December 2009) states that “a fundamental capability is establishing early and sustained situational awareness through all intelligence disciplines to enhance operations, planning and execution.” Situational awareness is derived from detailed intelligence, understanding of the operational environment and friendly and adversary activities and capabilities. Both Space and Cyberspace situational awareness are essential for accomplishing Space and Cyberspace related tasks and operations as well as supporting operational situational awareness, understanding, and decision making. And both achieve SA through the collection, reporting, analysis and assessment of a set of common components (e.g., surveillance of Space and Cyberspace, intelligence, and environment) that contribute information to achieve SA. The key area of intersection between Space and Cyberspace SA is represented by the tools-technologies-techniques employed to support visualization of the situation to the commander. Currently, we would argue, no Space and Cyberspace visualization capabilities have been effectively integrated into the commanders’ common operating picture. Nascent tools have certainly been developed that portray aspects of SA in both the Space and Cyberspace domains but nothing has appeared on the horizon that encompasses both domains—or points of intersection between the domains—or the key aspects of SA discussed above to be effectively integrated into existing COPs. The ideal setup would also allow for a degree of interoperability with our joint, interagency, intergovernmental and multinational partners. Given the high degree of similarity and numerous points of intersection between the Space and Cyberspace domains the development of a single visualization capability integrating data from each holds promise for more comprehensive understanding and potentially will save time and money in the process. Combining the efforts of the Space and Cyberspace communities of interest to identify technical solutions will help identify and account for the inherent interdependencies between these domains and operations. In addition these synergies are reinforced in an organizational sense as U.S. Strategic Command and a number of the Service Components are multi-hatting Space and Cyberspace commands.

Operations

Three key areas of synergy between Space and Cyberspace operations are concept and concept of the operation development, inter-service crosstalk and coordination and offensive-defensive integration. First, concept and CONOP development. Since the frameworks for Space and Cyberspace operations are similar it makes sense that collaborative development of future concepts and CONOPS would result in more complete and integrated concepts and CONOPS. This idea of Inter-Service Warfighter Talks suggests the benefits that would be derived from the formal coordination between the Services at the Major Command and at the Operational Command levels (e.g. Air Force Space Command and Army Space and Missile Defense Command, and 24th Air Force and Army Cyber Command). This concept of Army-Air Force and Army-Navy Warfighter activity would showcase and advance the ways that the services are approaching the planning and conduct of Space and Cyberspace operations to benefit utility and unify effort. Finally, the area of offensive and defensive integration is a promising area of collaboration. Both Space and Cyberspace operations require a level of integration between the defensive and offensive components, and both are characterized by classified and compartmented capabilities and are components of Army Special Technical Operations. It would be useful to collaboratively develop novel approaches to offensive and defensive integration and integrated STO in support of land campaigns.

Space and Cyberspace Training, Leader Development, and Career Field Management

Space and Cyberspace operations are hardware, software, and technical centric and require a significant level of commercial sector integration and coordination. Both involve considerable employment of communications and intelligence capabilities and related infrastructure considerations. Identifying the precise areas of intersection in the curricula, who provides this instruction, and what facilities and resources support this training and education for our military professionals is another potential cost saving and efficiency area of synergy. This education should be examined beyond the bounds of the Army, looking across the other services as well as training with academia and industry. We can admit that both Space and Cyberspace operations are poorly understood by the Warfighter. An examination of how we present these topics to our present and future leaders throughout the professional military education process may lead to a more holistic program of instruction that informs both areas work,

- Cyberspace Operations may also be employed to enhance the Army's ability to dominate Space through the delivery of cyber capabilities to adversary Space platforms and their supporting networks.
- Similarly, Cyberspace operations may be employed to enhance Air and Missile Defense Operations by simultaneously attacking adversary key Cyber nodes, while protecting our own from threat penetration and disruption.

and how they work together to effectively support full spectrum operations. A third potential area of synergy that should be explored is how we manage Space and Cyberspace professionals and subject matter experts. The Army Space professional cadre has been evolving over the last decade and there are surely lessons that could be applied to the development and management of an Army Cyberspace career field. Key questions need to be addressed. Does the Warfighter need a general knowledge of Space and Cyberspace operations, or does he simply need to know where and to whom to reach for advice and assistance in the integration of these areas? What about training with industry and how we can better understand and leverage commercial capabilities, ideas and processes?

Space and Cyberspace Capability Acquisition

It's no surprise that both Space and Cyberspace capabilities continue to push the research and development communities to the very edge of what is technologically possible, and both communities struggle with rapidly developing and effectively integrating capabilities for operational users. This continues to strain existing military acquisition processes which have principally been designed to produce hundreds or thousands of major end-items that come with a parts and logistic support cycle spanning years, or even decades. These processes are not well adapted to build a single Space platform, or a specialized Cyberspace capability. Both Space and Cyberspace operations require an acquisition process that favors speed and agility. The Army does not need to develop this process or capabilities alone. The tremendous strength inherent in effectively managing public-private partnerships is an area not yet fully exploited. Before this partnership can become *de rigueur* there are a few hurdles to surmount. Some of these include determining how we incentivize the private sector to participate; how we protect the intellectual property of private sector/academia while rapidly ingesting capabilities that are developed in support

of validated requirements; how we address the many security and clearance issues to get the requirement to the widest possible audience; and how we ensure capabilities developed through this process are interoperable with existing capabilities. Another shared concern to address in Space and Cyberspace capability acquisition is supply chain security. We must conduct technologically informed risk management and identify those capabilities and platforms within which we cannot afford the inherent risk associated with foreign-designed and manufactured components, and those for which we have a greater degree of flexibility in their country of origin and build or acquire accordingly. Certainly there will be economies in the implementation of a single supply chain management process for both Space and Cyberspace capabilities rather than independent processes for each area.

Conclusions and Recommendations

Given the incidents of intersection and overlap between the Space and Cyberspace domains, and their associated platforms, capabilities, and operations we have outlined a few areas where leveraging cross-domain synergy can realize cost, effort, and resource savings. So what's next? The key players in this kind of synergy must include U.S. Army Cyber Command, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command on the operational side, and their associated offices of Space and cyber proponentcy as well as the key elements within our institutional Army, notably the Mission Command Center of Excellence. Only through close and continuous coordination across these elements and organizations from the early concept and architecture work, through the various battle labs and centers of excellence, to the final fielding and employment of these capabilities can we hope to capitalize on these potential synergies and efficiencies for the good of our Soldiers and our Army. 

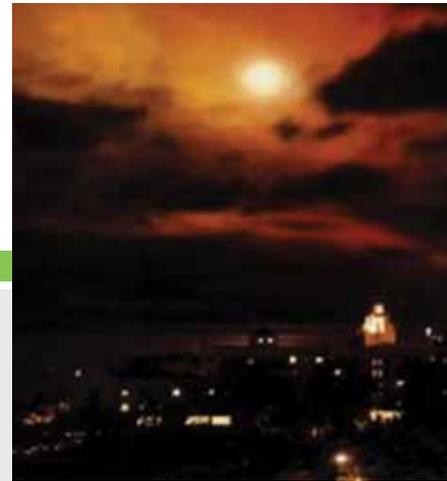
Footnotes

- ¹ Joint Publication 3-14
- ² Deputy Secretary of Defense Memorandum, SUBJ: The Definition of Cyberspace dated May 2008.
- ³ Joint Publication 3-14
- ⁴ (August 2009 update to the Deputy Secretary of Defense approved definition of CyberOps)
- ⁵ DOTMLPF refers to doctrine, organization, training, material, leadership, personnel, and facilities.

Bio

Mr. Shipp retired from U. S. Special Operations Command in 2009 and currently works for the Scitor Corporation supporting the USASMDC/ARSTRAT Battle Lab as a cyberspace operations subject matter expert. Mr. Shipp has been planning, leading and supporting the conduct of cyberspace operations for more than 10 years. He has been involved in the development of Army cyberspace concepts, training and leader development, advised senior military leadership on the integration of cyberspace operations in full spectrum operations, and briefed cyberspace operations and activities to the Vice President of the United States, White House and Congressional Staff, Director-Central Intelligence Agency, Director-National Security Agency, Director of National Intelligence, and Army, Air Force, and Navy flag officers.

High-altitude nuclear burst
"Starfish Prime" as seen
from Honolulu through thin
clouds in 1962.



MISSILE DEFENSE

Sorting Out Collateral Damage

BY JAY WILLIS

The successful intercept of a threat ballistic missile or cruise missile does not completely negate all hazards to friendly personnel or assets. Prediction of the effects resulting from the various debris that result from the intercept is a science that is still growing more than 37 years after the first anti-ballistic missile system was deployed, with many remaining knowledge gaps and many people unaware of the issue of post-intercept collateral effects. The hazards can be particularly significant if the threat missile contains a Weapon of Mass Destruction payload. A very brief overview history of the issue is presented.

Early Strategic Missile Defense

The first deployment of a ballistic missile defense capability for the United States was the Safeguard Program. It protected only some of our offensive ballistic missile fields, and the emphasis was on engaging Soviet strategic intercontinental ballistic missiles (ICBM) carrying large-yield nuclear warheads. The interceptor missiles (Sprint and Spartan) themselves carried nuclear warheads to inflict catastrophic damage on the threat nuclear payloads. The nuclear warheads on the interceptors were necessary because the technology of the era prevented reliably getting the interceptor close enough to the threat to insure destruction by means of a conventional explosive (blast/fragmentation) warhead.

Even with a nuclear warhead detonation, or possibly two (both the interceptor and the threat), there would have remained debris from both the threat and the interceptor (including booster components) that ultimately would have come to earth. That debris could have ranged from a severely damaged and inoperable but largely intact threat warhead landing near the intended ground target to very small particles of radioactive fission products and nuclear material (including uranium and plutonium) spread around the globe. There also

could have been significant collateral effects from the electromagnetic pulse caused by the nuclear detonations.

But concerns about collateral effects of the engagements were generally judged far less important than preventing the horrendous consequences of a nuclear strike conducted as intended by our enemy. Such a strike against our missile fields might have crippled our nuclear retaliatory capability, killed large numbers of civilians and military personnel in the target area, and caused millions of deaths among the general population due to nuclear fallout hundreds of miles downwind.

The advent of the Strategic Defense Initiative Organization in 1983 again stimulated serious interest in ballistic missile defense. The objective became a defense of the entire United States and our allies against a massive nuclear strike by the Soviet Union. The means of engaging these thousands of threat missiles also changed from nuclear-tipped interceptors launched near the ground target to a wide variety of interceptors relying on conventional warheads or simple direct impact kinetic energy ("hit-to-kill") or on more than a half dozen directed energy weapon concepts from lasers to particle beams.

Under SDIO, the paradigm regarding concern over collateral effects changed very little. The non-nuclear interceptors or directed energy weapons still resulted in debris from the threat nuclear weapons, interceptors, and possibly detonation of the threat nuclear warhead. There would have been no EMP from the interceptor, since none were nuclear-tipped, but there may have been EMP from a threat warhead detonation, and it may have occurred anywhere between the Soviet Union and the United States, depending on the missile defense weapon used. There also would have been the inevitable release of nuclear materials from the threat warhead. But any of this would have been far preferable to a successful massive nuclear strike on our homeland or allies.

Investigation of the various collateral effects was largely limited to consideration of whether the effects would hamper the operation of the missile defense system, itself. The various debris and their effects could interfere with radar, optical seekers, electronics, or structures of satellites or interceptor missiles. These concerns were rarely in the public eye, and they usually took a back seat to the fundamental problems of developing an interceptor or directed energy weapon that could reliably “destroy” a threat nuclear warhead.

Theater Ballistic Missile Defense

The 1990-1991 Gulf War, followed closely by the demise of the Soviet Union and the reduced perceived risk of a massive nuclear strike against the United States, changed the ballistic missile defense business. The Strategic Defense Initiative Organization became the Ballistic Missile Defense Organization.

Beyond the name change, the new organization concerned itself far more with Theater Ballistic Missile Defense than with strategic ICBM defense, and with engaging a few missiles rather than a massive strike with thousands of inbound warheads. Rather than protecting a significant fraction of the surface of the globe, relatively small geographic areas were to be defended. Directed energy weapons were largely abandoned, with emphasis ultimately shifted to ground-based kinetic interceptors such as what we now know as Patriot, Theater High Altitude Air Defense and Aegis. Improved interceptor performance permitted reliance on hit-to-kill kinetic energy impact, which also tended to yield greater damage to the threat warhead than blast/fragmentation warheads. The threat missiles of most interest were slower, shorter-range, and less sophisticated than emphasized under SDIO (e.g., the SCUD rather than the SS-18). The altitudes of intercept generally became lower.

While threat nuclear warheads remained of great concern, attention was suddenly turned to conventional explosive threat warheads and to payloads of other weapons of mass destruction, such as chemical and biological warfare agents. The latter trend was particularly significant because so much expertise in chemical and biological warfare had been lost from our defense community over the preceding decades as the United States dismantled its offensive chemical and biological warfare capabilities.

An intercept of a chemical or a biological agent payload does not “destroy” all the agent outright. The WMD material, like all other missile defense intercept debris, generally comes down somewhere. With theater ballistic missiles, that somewhere is usually in the theater of interest, and it may be inside the defended ground area. Furthermore, it became possible that under unusual circumstances an intercept-induced release of chemical or biological agent or warhead components might create a potential for ground personnel casualty collateral effects that rival or exceed that from the non-intercepted warhead.

Thus, under BMDO, greater attention was paid to the personnel casualty-producing collateral effects that might arise from a TBMD engagement, comparing those to the casualty effects that might occur from a non-intercepted ballistic missile.

A “Hit” Is Not (Necessarily) a “Kill”

Lethality of the interceptor (whether kinetic energy or directed energy) against the threat warhead naturally had always been an active program component in SDIO, and it remained an even more important program in BMDO. The ability to negate or “kill” the threat missile is, naturally, a key measure of the missile defense system effectiveness. The things that changed were a clearer recognition that greater interceptor lethality usually did result in lower ground effects consequences, but even very heavy mechanical destruction of the threat warhead might not completely negate the ground effects.

There are six different basic threat warhead designs of primary interest

- Nuclear (including multiple warheads on a bus)
- Unitary conventional High Explosive
- High Explosive Submunitions
- Unitary Chemical
- Chemical Submunitions
- Biological Submunitions

The damage inflicted on any of these by an interceptor missile can vary widely, depending on the characteristics of the threat warhead, the characteristics of the interceptor and the intercept geometry (including angles, speeds, and precise hit point).

A nuclear warhead contains high explosive to initiate the nuclear detonation. If that explosive is initiated by the intercept event without a full nuclear detonation resulting, then the nuclear material fragments and rains to the ground. The fragments can vary greatly in size, including extremely small particles that may be distributed on a global scale. The nuclear material is usually considered to represent a long-term but relatively minor radiation hazard. The results of a nuclear detonation are explained above, and unless the intercept is at an extremely low altitude, the only prompt effects on the ground will be EMP. If the warhead is not intercepted, or if the intercept fails to inflict sufficient damage, the full nuclear yield at the threat’s design burst altitude can result in huge damage to ground structures and many thousands of personnel casualties.

The fragments of non-nuclear warhead component materials that fall to ground after a non-nuclear detonation may represent a personnel hazard just due to the kinetic energy of impact, but the chance of someone being hit is quite small. This low hazard of personnel casualties resulting from the various fragments of warhead structure that impact the ground is a common feature of all the threat warhead types, and this hazard likely is less than if the threat warhead itself simply hit the ground intact but without detonation.



MISSILE DEFENSE

on Guard

TEXT AND PHOTOS BY
SGT BENJAMIN CRANE,
100TH MISSILE
DEFENSE BRIGADE
PUBLIC AFFAIRS



U.S. Army Space and Missile Defense Command and the Colorado Army National Guard activated the nation's first ground-based Midcourse Defense Brigade Oct. 16, 2003.

The brigade operates the first part of the integrated Ballistic Missile Defense System, which, in concert with sister services, is designed to protect the nation from accidental or intentional limited ballistic missile attacks. It is manned both by Colorado Army National Guard and active-component Soldiers.

The brigade provides expertise to U.S. Northern Command's command and control operations from the Schriever Air Force Base. Alpha through Echo crews man the computers that monitor the skies. There are also crews in Alaska and California that monitor computers and Missile Defense systems to aid the efforts to keep the skies over America safe.

Soldiers in the 100th Missile Defense Brigade perform their crew drills at the missile defense element at Schriever Air Force Base, Colo. These photos have been modified to exclude classified information for operational purposes.



A unitary high explosive warhead contains a single, relatively massive high explosive charge. If it is detonated by the intercept event (usually considered a very likely result), then only fragments of warhead component materials will remain to fall to earth. If the unitary high explosive warhead is not engaged, or the damage inflicted at intercept is insignificant, then damage on the ground can affect a good portion of a city block and the dozens of people in it.

High explosive submunition warheads contain multiple weapons that separate from the reentry vehicle at some distance above the ground, depending on the submunition and warhead design. There may be as few as two submunitions or as many as hundreds. An intercept may destroy all of them, some of them, or none, depending on the details of the engagement. The surviving submunitions may or may not be capable of detonating when they reach the ground. Any detonating high explosive submunition will affect only the area immediately around it, depending on the size of the submunition. But the surviving submunitions may be scattered over a relatively large ground area, depending on the details of the engagement. A non-intercepted warhead will usually scatter the submunitions over a relatively small ground area by design so that the effects from adjacent impacting submunitions approximately overlap. The potential for personnel casualties can be greater or less than for a unitary high explosive warhead, depending on a variety of factors, but is still small compared to WMD warheads.

A unitary chemical warhead contains a single, relatively large, tank of chemical warfare agent. If the damage inflicted at intercept is sufficiently great, the tank will rupture, dispersing the chemical agent near the altitude of intercept. Whether the dispersed chemical agent represents a ground hazard depends critically on properties of the fluid and other circumstances, as discussed below. If the tank is not ruptured, then there will be some sort of ground hazard as the warhead impacts the ground or releases its agent at very low altitude. A non-engaged unitary chemical warhead can spread lethal contamination over several square kilometers under certain conditions, potentially creating thousands of casualties, though the number of casualties would depend greatly on the type of agent and whether ground personnel have taken cover.

A chemical submunition warhead presents generally the same situation as a high explosive submunition warhead insofar as submunition destruction and dispersal is concerned. The chemical agent contained in submunitions destroyed at intercept will be dispersed there and may or may not represent a ground hazard. Surviving submunitions will generally disperse their agent on or near ground impact. Less chemical agent is usually carried in submunition warheads as opposed to unitary chemical warheads, simply because of the added weight and complexity of the submunition warhead design, so the total casualty-producing potential is typically correspondingly less. But the potential number of casualties can still be

several hundred, and the effects can be widely scattered with the intercept-dispersed surviving submunitions.

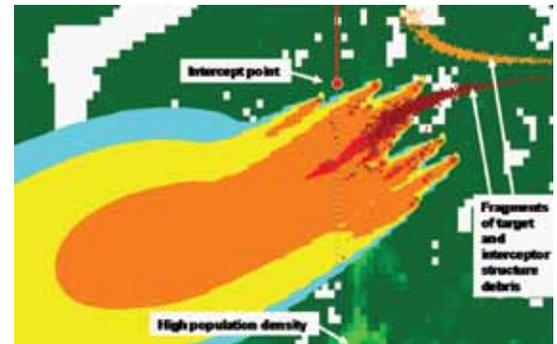
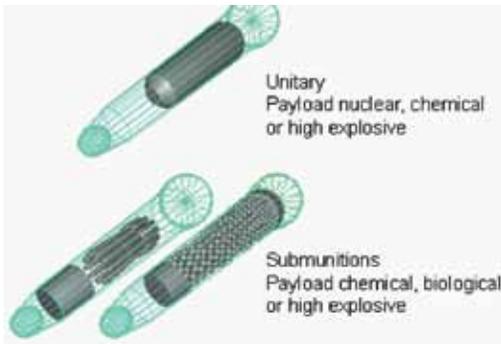
There are several critical differences between the ground effects resulting from warheads containing biological agent and chemical agent. A biological agent (e.g., anthrax) can be a thousand times more lethal to ground personnel than a similar weight or volume of chemical agent. (Some biological agents are not intended to be lethal, but rather to inflict some debilitating effect other than death.) This very high lethality makes a unitary biological warhead less likely to encounter simply because it would be a very inefficient use of the agent. A submunition warhead, on the other hand, can be designed to spread the agent effectively over a very wide ground area. The high lethality of the biological agent means that many more people can be affected, very far downwind. The casualty - creating potential might equal that of a nuclear weapon.

Another critical difference is that the biological agent is typically dispersed in very small particle size, on the order of a few micrometers in diameter, so that the particles may be inhaled by the ground population. (Chemical agent typically achieves its effect by drops contaminating one's skin or by the inhalation of vapors.) The small particle size means that any biological agent released at the point of intercept would not fall to ground for many hours or days. This is important because a final critical difference is that the biological agent is typically sensitive to solar ultraviolet radiation, becoming ineffective after prolonged exposure to direct sunlight. So the biological agent released at intercept altitude is unlikely to be effective when it reaches the ground. The biological agent collateral effects resulting from an intercept thus are determined first by the number of submunitions surviving to ground impact. But due to the high lethality of the agent contained in the individual submunitions, even a small fraction of the original warhead payload can affect thousands of ground personnel.

Collateral Effects Sensitivities

The severity of the ground personnel casualty collateral effects resulting from a missile defense intercept varies tremendously with the particular circumstances, ranging from negligible (structural fragments falling into the ocean) to very large (many biological submunitions falling into a highly populated area). There are many parameters that contribute in a complex and non-linear fashion. Several computer tools have been developed specifically to address these issues and predict the results of an intercept, so this discussion is only an overview of some of the most important considerations.

The threat properties are critical. Especially, what is the warhead type? Within each warhead type, what are the design characteristics of the payload? For instance, is the chemical agent highly volatile, intending to create casualties from vapor inhalation, and therefore likely to evaporate on its way to the ground when released at intercept altitude? Or is the chemical agent thickened and non-volatile, intending to create



FROM LEFT TO RIGHT (1) Ballistic missile generic warhead types. (2) Patriot (PAC-3) intercept of a ballistic missile target in 2000. (3) Sample prediction of collateral effects from an intercepted biological submunition warhead. Orange area has an incidence of biological effect on 50 percent or more of personnel. Note 10-km scale on lower right.

casualties from liquid deposition, and therefore likely to fall to the ground in a hazardous form even if released from tens of kilometers in altitude?

The interceptor properties are important. Is it a large interceptor or a small one? Does it kill with a hit-to-kill body-to-body strike or with a blast/fragmentation warhead? Coupled with this, especially with a hit-to-kill intercept, the engagement geometry makes a vital difference. What is the overlap of the two bodies? Where is the strike point: a solid hit in the payload bay of the threat warhead, or a glancing blow in a non-critical area such as an attached booster component? What are the angles? What is the closing speed between the threat and interceptor? The higher the closing speed, the higher the kinetic energy available for payload destruction.

The absolute speed of the threat might play an important role, independent of the closing speed between the threat and the interceptor. The threat speed is usually directly related to its ground range. A short-range theater missile (e.g., the original SCUD) travels more slowly than a long-range ICBM. The higher the speed, the more likely that intercept debris, including submunitions or slightly damaged warheads surviving the intercept event, will demise due to atmospheric heating. Higher speed means that dispersed chemical agent is more likely to break into very small drops or evaporate outright, thus less likely to result in casualty-producing hazardous ground contamination.

The altitude of the intercept is important. The ground scatter of all debris, both the width of the pattern and its centroid location, including surviving submunitions, depends on the altitude. The drop size of dispersed liquid chemical agent depends upon the altitude as well as the threat reentry speed, and the drop size is critically important in a determination of the potential collateral effects.

Environmental conditions are vitally important, especially the winds at all altitudes from the intercept point to the ground surface. The air turbulence and weather conditions such as cloud cover, time of day, temperature, atmospheric pressure,

humidity and precipitation can all play a role. The ground surface condition can be important, including whether it is heavy forest or uninterrupted sand, as can terrain features, whether flat prairie, mountains and valleys, or tall city buildings.

Finally, the ground personnel population itself is critical. Is the affected area densely populated, or largely deserted? Are people indoors or outside? Do they have any sort of protection against WMD effects? Is it a general population including the very old, the very young and the sick, or is it solely a healthy male population of young Soldiers?

Today

Intercept-induced collateral effects remain a concern today, though the level of concern varies from year-to-year, program-to-program, and country-to-country. The concern also varies whether the collateral effects are measured in terms of personnel casualties, political impact from effects on a third-party nation, or disruptive effects on the missile defense system. The concern also varies with several closely related concepts: intercept lethality (damage inflicted on the threat warhead), hit assessment (whether/where the interceptor hit the threat missile), kill assessment, collateral effects consequence management, and warhead typing (determination of the warhead type).

The study of collateral effects remains active because there are many unresolved technical issues, and the knowledge impacts plans for missile defense deployment. It is hoped that a good understanding of the expected collateral effects can be used to minimize those effects by an intelligent choice of the intercept conditions: interceptor type, engagement location, angles and altitude.

But while being concerned about collateral effects, one must never lose sight of a fundamental tenet of missile defense: it is nearly always best to conduct an intercept rather than let the threat missile do the damage intended by our adversary, placing an extraordinarily destructive warhead in our population centers. 

FUTURE TASKS FOR THE DIVISION

▶ SPACE SUPPORT ELEMENT

The Army Space leadership created Space Support Elements and incorporated them in divisions beginning in 2004 to integrate Space effects into tactical operations and educate the Army on Space capabilities. Over the last seven years, the SSEs successfully enabled division staffs and Major Subordinate Elements to maximize Space capabilities, and they are now fully integrated into division headquarters. Now the Space community has the opportunity to expand the role of SSEs into performing Space tasks in addition to their planning and synchronizing role. This article addresses two of the Space mission areas (space force enhancement and Space control) and attempts to define a task list for future division SSEs. SSEs already perform a few of these, but some tasks require equipment/personnel that SSEs do not currently possess. Accomplishing this requires developing new capabilities for the SSEs to employ, and moving other capabilities from strategic units down to divisions for employment at the operational and tactical levels. →

BY LTC ANDY HITTNER

TALKING SHOP



LTC Andy Hittner is an Infantry Officer who officially became an FA40 in December 2004. He received a Masters in Space Systems Operations from the Naval Postgraduate School in October 2003 and served with the Force Development Integration Center from October 2003 to August 2004. He was a member of the 101st Airborne Division's Space Support Element from August 2004 to July 2009 where he served a 12 - month tour in Iraq (September 2005 to September 2006) and 15 - month tour in Afghanistan (March 2008 to May 2009). He is currently a combat development officer with SMDC's Directorate of Combat Development at Redstone Arsenal.

→ The tasks are

1. Position, Navigation, and Timing Augmentation
2. Intelligence, Surveillance, and Reconnaissance Negation
3. Space Control
4. Integrated Joint Special Technical Operations

The SSEs (and Army) should expand their role with Position, Navigation, and Timing. The current SSE role is to make navigational accuracy charts that show when the GPS signal is strongest (and weakest) in a region, then synchronizing operations to coincide with stronger GPS signals. The signal strength is based entirely on the geometry of the GPS constellation so other sources of error such as atmospheric effects and multipath are ignored. This can result in units operating in an area that is “green on GPS” yet they have significant navigational errors. SSE personnel are not capable of strengthening the GPS signal when needed (other than asking the Air Force to update the timing on the satellites more often, which only provides a marginal improvement in accuracy). There is an opportunity for U.S. Army Space and Missile Defense Command to lead an Army effort to develop a method to strengthen the GPS signal in a region at least the size of a village. The augmented signal must be strong enough that a GPS receiver on an individual Soldier works inside a multi-story building with an accuracy that is within a foot (preferably within a couple inches), and the effect must last for at least several days when needed. Construction sites already use differential GPS systems to determine the position of a bulldozer blade to within a few inches. They accomplish this by emplacing several beacons around the construction site that broadcast additional GPS signals. This stronger navigational signal would allow other Army developers (like PEO Soldier and PM Battle Command) to develop systems that allow platoon leaders and company commanders to track individual Soldiers’ locations while conducting urban operations. Army Blue Force Tracking systems working with the current GPS constellation do a good job tracking vehicles on battlefields, but they fail to track individual Soldiers, and they do not work inside buildings. Additionally, this system could defeat the small and cheap GPS jammers that are easily obtained in large quantities by simply overpowering them with superior signal strength. Planning and executing this capability is a division level responsibility (or lower) because this system would probably require emplacing and operating hardware on the battlefield itself. Divisions need to own this equipment themselves to allow its use during routine training in garrison. Creating GPS augmentation teams that are attached to units as they deploy to combat is not sufficient.

An additional task for future SSEs is intelligence, surveillance, and reconnaissance negation. Enemy forces in the war on terror already use satellite imagery from sources such as Google Earth, but more sophisticated foes will have their own satellite surveillance systems that pose a greater threat. Our forces need the ability to prevent electro-optical systems and

radar systems from producing images of their location and disposition. Again, the division must own the privilege to activate these capabilities. Corps and higher staffs always have the ability to monitor, or dictate, the division’s use of the systems, but the ability to control these systems belongs at the lowest level possible. The division has a large enough staff to plan and execute these missions, and it is close enough to the front lines to respond to a rapidly changing environment.

The current SSE role in Space control is to request support from combatant command level units and synchronize the effects for a particular time and place. Very few division SSEs request this support. Reasons for not requesting support vary from one unit to the next, but they generally center around a belief that a division request will never reach a high enough priority for action. Additionally, some Army Space control assets remain un-utilized in the contiguous United States because the Army will not attach them to a unit in theater. If the SSE owned assets that can perform Space control then those assets could be in theater today.

Integrated Joint Special Technical Operations is a term that refers to a number of classified programs. Access to each program is controlled, and personnel with access is kept limited. IJSTO systems have capabilities that fall into the mission set of several functional areas and branches so there is no clear military occupational specialty (MOS) or functional area that should oversee the entire program for a division (or any other level). Synchronizing the efforts across a division is challenging, and this makes the need for a division IJSTO manager clear. The point of discussion is why should the SSE perform the task. FA40s in divisions and corps are already tasked with taking capabilities that reside inside closed channels (usually referred to as “stovepipes”) and integrating them across the entire staff. The cliché, “they are horizontal integrators of vertical programs” is probably the best way to summarize this. Additionally, IJSTO programs are very technical, and they have strict security clearance requirements. FA40s meet those criteria.

Of course, this is not an exclusive list. Division SSEs already have a role in theater missile warning which they should continue to perform. As technology advances, new capabilities will emerge that SSEs will facilitate. It is important for the Army Space Community to develop these capabilities as rapidly as practical and to push these systems to SSEs with doctrine describing how to employ them. A primary theme of Army transformation was pushing capabilities down from the strategic level to the operational and tactical levels. Army Space capabilities need to follow that example. Space Support Elements accomplished their initial mission of enhancing maneuver forces’ use of Space capabilities, and they are successfully integrating Space across our combat units. Now is the time to increase their operational capabilities to truly bring Space to the tactical Warfighter. 



Army Space Cadre News

Section Coordinator Mike Connolly



New ASPDO Soldier

ronald.hinkle@us.army.mil

Please welcome the newest member of the FA40 Personnel Development Office team, MAJ Ronald "Troy" Hinkle. MAJ Hinkle is the only FA40 on our staff. His most recent FA40 experience was as a Space Operations Officer at U.S. Army Kwajalein Atoll. MAJ Hinkle takes over our Professional Development Officer position. He is responsible for all Army training quotas to the National Space Security Institute's Space 200 and 300 classes. Additionally, he will manage the FA40 Training with Industry and Advanced Civil Schooling programs. He is also hard at work planning the 2011 Army Space Cadre Symposium.

719-555-0458

2011 Army Space Cadre Symposium

Mark your calendars! The 2011 Army Space Cadre Symposium is scheduled for August 1-5 in Colorado Springs at the Scitor facility. Our host hotel is the Holiday Inn at 1855 Aeroplaza Drive near the Colorado Springs Airport. We have continued to expand our scope to include both space professionals and space enablers. We also partnered with the Army Space Journal on a theme of "The Common Ground of Space." Expect a synchronized release of the ASJ with the symposium. Register and get additional information as it's released on our Army Knowledge Online website. Link is <https://www.us.army.mil/suite/page/343526>. There is also a link for hotel registration on the page.

For questions call or e-mail MAJ R. "Troy" Hinkle, 719-554-0458 or ronald.hinkle@us.army.mil.



TOP ROW: SSG Sumira Smith; CPT Kurt Semon; A1C Cory Majette; CPT Scott Manson; Mr. Donn Hawes; SSG Adam Murphy BOTTOM ROW: PV2 Dustin Johnson; 1Lt Stephanie Olson; SrA Janice Joseph; SSG Demarius Banes; PFC Joshua Longmire; SSG Michael Nardone *U.S. Army Photo*

Sensor Manager Qualification

Recent graduates from the Sensor Manager Qualification Course 11-04. These individuals will be supporting operations in U.S. European Command, Pacific Command, Joint Functional Component Command for Integrated Missile Defense and Distributed Multi-Echelon Training System. Graduation Date: Feb. 4, 2011

Army Civilian Space Cadre

The Army recognizes that DoD Civilians are a critical space resource and, in many cases, have as much or more experience than their military counterparts. Many Civilians spend much of their careers in space positions and it is the Army's goal to track this expertise and offer cadre members continuing education and training opportunities. Additionally, we want to recognize these Civilians for their contributions.

With over 370 civilians currently identified, the Army Space Personnel

Development Office tracks Space cadre positions and individuals using the Space Cadre Database. Positions are nominated, approved, and coded on authorization documents. Personal data is collected using a Civilian Space Cadre Questionnaire that collects information on a cadre member's Space education, training, and experience. Once the questionnaire is submitted, the Army Space Cadre Office awards a Space Cadre Pin and Certificate based on the individual's level of space certification.

If you have any questions about the Army Civilian Space Cadre, you can reference the Space Cadre Website at <https://www.us.army.mil/suite/page/343526> or contact Jim Schlichting at jim.schlichting@us.army.mil.

The Army has four levels of space certification based on Space education and experience:

- Level 0 – Space Cadre Basic Course (or equivalent) with less than one year experience in a Space position;
- Level 1– Space Cadre Basic Course (or equivalent) plus one year experience;
- Level 2 – Space 200 Course plus four years experience;
- Level 3 – Space 300 Course plus seven years experience

Are You Qualified for Your Future?

At a recent Officer Professional Management System Council of Colonels there was a discussion concerning future prerequisites for officers selected by the Army to be brigade commanders. Included was the requirement to be a Senior Service College graduate as well as being Joint qualified. Although these stipulations apply to selections made through the Centralized Selection List process, if adopted, they could also be used in the selection of the 1st Space Brigade commander.

WILL YOU BE QUALIFIED?

Functional Area 40's (FA40) who have come by the Army Space Personnel Development Office (ASPDO) have been asked "what is it you want to do when you grow up?" This question may sound silly to some and simple to others, but it is important that as a space professional you consider the answer. There are now close to 300 Space Operations Officers to fill 210 requirements within the functional area. Your individual career track and long-term goals may not include command, but whatever track you take and goals you set will not happen unless you plan with forethought and consideration.

So, back to the question what are your personal goals and desires for your career? To break it down further, have you considered where it is you want to be or what you want to have accomplished on the last day of your Army career? To help you get there, consider that it is not only command positions that have significant prerequisites. FA40 has critical Joint billets that require previous/successful Joint experience and completion of JMPE-II; some billets require an advanced degree; and many of

the FA40 colonel billets are designated as a second O6 assignment.

As a significant number of officers continue to place FA40 on the top of their Career Field Designation or Voluntary Transfer Incentive Program request, the ASPDO is challenged to find new opportunities and billets to expand existing requirements. Our balance between population and requirements will not be equal in the foreseeable future. Therefore, competition for key billets may be stiff, so if you are not planning now, you are late.

Taking the time to stop by (or call) the ASPDO to gain a perspective of available billets, and the experience, training and education requirements associated with them will help ensure that when the time comes to Permanent Change of Station move, you are eligible for the position you want and it is the right one to help you reach your goals.

Being qualified can be synonymous with remaining competitive. Taking control of your career now will ensure that you remain both throughout your future.

the Space Badge –

Army's Newest Badge

The Chief of Staff of the Army recently approved establishment of the Air Force Space Badge as a group 4 Army badge. With the change to a group 4 badge you can now legitimately wear your Space Badge with Group 3 badges such as the Aviator Badge.

Additionally, the term "Air Force" was dropped from the name and the badge is now called the Space Badge. A paragraph pertaining to the Space Badge will appear in the next update to AR 600-8-22, Military Awards, and a Military Personnel Division message is pending at Army Awards Branch. The Air Force heraldic description of the badge remains valid.

Air Force Space Command developed and fielded the Air Force Space Badge in November 2005 to represent and unify the Credentialed Space Professional or Space Cadre community and, with

AFSPC and Army Chief of Staff approval, the Army began awarding the badge to Soldiers of the Army Space Cadre in 2006. Since then, over 1,330 badges have been awarded to 1,150 Soldiers.

The criteria for award and processing procedures remain the same. The transition to an "Army" Space Badge is transparent to Soldiers. The Army Space Personnel Development Office manages the Space Badge award program. Procedures are outlined in ASPDO Procedural Guide #1 – Procedures for Awarding the Space Badge to Army Space Cadre Personnel. An updated procedural guide has been posted on the ASPDO Army Knowledge Online website at <https://www.us.army.mil/suite/page/343526>.

Changes include the issuance of orders instead of approval memorandums, redesign of the certificate of award, and coding of the award on Soldier records.

NEW AWARD CODES

- ABSB Basic Space Badge
- ASSB Senior Space Badge
- ASMB Master Space Badge

The records of Soldiers previously awarded the Air Force Space Badge will not change to reflect this new designation nor will orders be generated. Previously issued approval documents remain valid. The badges are available through AAFES clothing sales.

The ASPDO points of contact are Bob Kyniston at 719-554-0459, robert.kyniston@us.army.mil, or Kyle Ramsey at 719-554-0450, kyle.ramsey1@us.army.mil.

Newest Training Completion Codes

Human Resources Command approved 13 HR system codes for the following space-related training courses taught by the U.S. Army Space and Missile Defense Command/ Army Forces Strategic Command Future Warfare Center Directorate of Training and Doctrine. These codes can now be input into military databases to reflect on Soldier record briefs.

CODE	COURSE
XDD	Army Space Cadre Basic Course Ph I
XDE	Army Space Cadre Basic Course Ph II
XDF	Sensor Manager Qualification Course
XDG	GMD Master Gunner Course
XDH	Joint Tactical Ground Station-IQT
XDI	Joint Tactical Ground Station-LDC
XDJ	Missile Defense Operator Course
XDK	N2C2 Basic Course
XDL	Small Group Training Instructor Course
XDM	Army Space Cadre Senior Leader Seminar
XDN	System Approach to Training Basic Course
XDO	(TSOC) Space Operations System
XDP	(TSOC) Tactics, Techniques, and Procedures

Soldiers who have completed this training can provide a copy of their applicable course completion certificate to their servicing Military Personnel Division or brigade S1 to update their records.

The Army Space Personnel Development Office point of contact is Bob Kyniston at 719-554-0459, robert.kniston@us.army.mil.



Mike Connolly /// Bio
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Initially commissioned as an Air Defense officer, Mike Connolly served the majority of his 26-year career as an Army aviator prior to being selected as a Functional Area 40 during the first Career Field Designation Board. His assignments as an FA40 included Chief of Staff, Cheyenne Mountain Operations Center; Director, Command and Control Systems (J6), Cheyenne Mountain Operations Center; Command Director, Cheyenne Mountain Operations Center; Executive Assistant to the Commander, U.S. Strategic Command; Deputy, J36 (Current Operations), U.S. Space Command; Chief, Joint Space Support Team, U.S. Space Command; Chief, Standards and Evaluations, Cheyenne Mountain Operations Center; and Mission Director, Cheyenne Mountain Operations Center. He is a graduate of the U.S. Army War College as well as East Tennessee State University.

719-554-0452



Training Insights

Section Coordinator Larry Mize

Space Training Immersion for 4th Infantry Division

By Mike Russell, FWC DOTD; MAJ Cecil Strickland, 1st Space Bn.; MAJ Jason Needler, 1st Space Bn.; MAJ Jeff Duplantis, 1st Space Bde.



Warriors of 3rd Battalion, 16th Field Artillery (3-16 FA) and DOTD trainers.

The 1st Space Brigade and the Future Warfare Center Directorate of Training and Doctrine partnered to provide a Space Training Immersion Day on Mar. 16, 2011 for the Warriors of 3rd Battalion, 16th Field Artillery from the 4th Infantry Division, Fort Carson, Colo. In preparation for deployment, 35 officers, NCOs and government Civilians from 3-16 FA trained on FA mission enabling Space force enhancement areas such as Space organizations/Army Space teams available to them, Global Positioning System capabilities, the Army Space Support Teams and Commercial Imagery Team capabilities, and national Space systems. The audience of Fort Carson Soldiers included unit leadership from the battalion commander and staff, the battery commanders and first sergeants, platoon leaders and Department of the Army Civilians assigned to the battalion. The 1st Space Brigade provided recently redeployed and soon deploying Army Space Operations Officers to add insight to the unit-level training. All in all, the full day of Space immersion was a successful experience for the 3-16 FA, the training cadre of DOTD and the 1st Space Brigade.

TRAINING TRAINING TRAINING TRAINING



DOTD graduated five individuals from the first Sensor Manager Leader Development Course

on 22 Apr 11. In a week long course, these individuals received intensive training consisting of radar performance and employment, effects, system mitigation, and environmental impacts to the radar. The individuals will serve as Sensor Manager battle managers for their respective component commands. The graduates from left to right are CW3 Matthew Betzmer (100 Bde), CW3 Dareck Harris (EUCOM), CPT Brent Johnson (EUCOM), 1LT Michael Palanza (EUCOM), and MSgt Susan Sparks (JFCC-IMD) *U.S. Army Photo*

Army Space Cadre Basic Course On the Road Again

By Lenny Gehrke

The Directorate of Training and Doctrine, Space Division training team has been busy this year conducting the Army Space Cadre Basic Course. The ASCBC Phase I is a 40-hour Army Space fundamentals course that educates Soldiers on orbital mechanics, Space history, Space law, Space environment, Space mission areas, Space organizations, and Space systems acquisition. The ASCBC training helps Soldiers understand the fundamentals of space, helps them better understand their unique mission areas in the larger context of U.S. Army Space and Missile Defense Command/Army Forces Strategic Command and Department of Defense Space organizations, and helps Soldiers become well rounded in the Space arena. The ASCBC is part of the education requirement to earn the Army Space Badge.

Course manager Lenny Gehrke leads the training team which has conducted six courses this year including four mobile training teams. The ASCBC MTT supported Joint Tactical Ground Station units located in Korea, Germany, and Qatar where the operators expressed their appreciation by presenting the DOTD instructors a unit coin.

The ASCBC training team also instructed at the Naval Aerospace Medical Institute located in Pensacola, Fla., where the U.S. Army sends their Aerospace Medicine physicians through the Navy residency program. The ASCBC is just a part of their training which earns the Army doctors the 3Y Space identifier at the completion of their training. The NAMI students presented the training team a plaque at the end of course to show their appreciation for the outstanding training.

The ASCBC is available to all USASMDC/ARSTRAT Soldiers and Civilians to provide foundational Space education to aid in their jobs. Upcoming course dates are available in the Army Space Journal and on the Command Home Page under the training link.



The Naval Aerospace Medical Institute received instruction from the Army Space Cadre Basic Course mobile training team. *U.S. Army Photo*



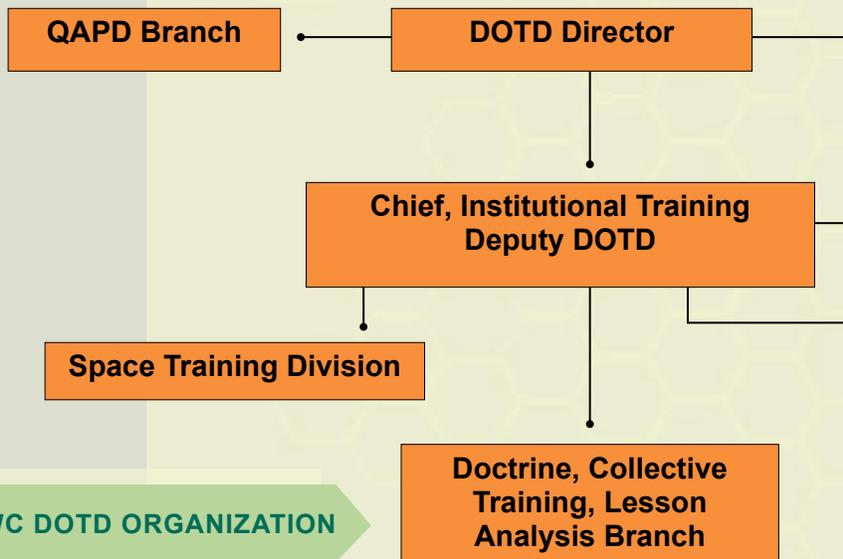
Larry Mize //// Bio

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Larry Mize graduated from Xavier University with a Bachelor of Science in Mathematics in 1973. He entered active service in the United States Navy serving as a career specializing in Naval Intelligence, Aircraft Carrier Operations, Naval Special Warfare (SEALs), and Space Operations. He attended French language training at the Defense Language Institute and subsequently served as the U.S. Navy Liaison Officer to the Commander French Forces Indian Ocean/French Foreign Legion/Commandos Marine in Djibouti. He attended the Naval Postgraduate School and was awarded a Master of Science in Space Systems in 1986, subsequently serving at U.S. Space Command and U.S. Strategic Command. Mize is currently Chief of Space and Ground-based Midcourse Defense Education Training

719-554-4545



FWC DOTD ORGANIZATION

Directorate of Training & Doctrine

Missile Defense Training Division

By Clem Morris

The creation of the Directorate of Training and Doctrine (DOTD) on Oct. 1, 2010 allowed for unity of effort in delivering the highest quality of Space and Missile Defense training to Soldiers. The new DOTD organization established two institutional schools within DOTD – the Space Training Division and the Missile Defense Training Division. This implementation was critical in the organization’s effort to meet its mission to provide training, education and doctrine to enable Space, Missile Defense, and high altitude full spectrum operations by Army Space and Missile Defense forces in support of Combatant Commanders. This article showcases the Missile Defense Training Division schoolhouse.

Some of the courses that the Missile Defense Training Division manages include the GMD Operator Course, GMD Master Gunner Course, GMD Leader Development Course, Command Launch Equipment Operator Course, Sensor Manager Qualification Course, Sensor Manager Leader Development Course, Sensor Manager Executive Course, and the BMDS Asset Management Course. An important component within these programs includes leadership development training. The DOTD goal is to develop an educational framework in which these individuals can grow professionally, become technically competent, and lead others in the accomplishment of the mission. The GMD Master Gunner Course is an example of how

DOTD is enhancing Soldiers’ ability to fight and win. The course provides a vehicle in which Soldiers can develop their leadership skills over a period of time through a series of modules. The program allows these individuals to perfect leadership and management techniques as well as apply critical thinking concepts in the contemporary operational environment, culminating in a capstone project that leads to attainment of Master Gunner.

The Sensor Manager Leader Development Program also provides leaders an avenue to develop and hone their skills. The focus of this course is on Sensor Management battle management concepts that perfect their understanding of integration, employment, and execution of their respective weapon system, the AN/TPY-2 (FBM) radar. The future also offers new training opportunities for the organization. The deployment of more AN/TPY-2 radars has increased our student throughput dramatically.

With new technologies emerging, student attendance and new courses will continue to grow as well. For example, DOTD recently developed the BMDS Asset Management Course to meet the demands of a quickly growing missile defense community. This course provides a basic overview of BMDS, identifies the purpose of BMDS Asset Management, and explores the processes and tools of BMDS Asset Management Planning and Execution. The BMDS Asset Management Course’s primary goal is to enhance the knowledge and expertise of operators and other Warfighters in their various Global BMDS Asset Management roles and functions.

Training Support Branch

LNOs
- CGSC
- NSSI
- ASOPS

Missile Defense Training Division

If you are interested in learning more about these courses please refer to the course guide in the following pages or contact Clem Morris by e-mail or by phone listed below. The DOTD looks forward to fulfilling the Directorate of Training and Doctrine's motto of "Preparing the Warfighter today for the challenges of tomorrow."

Clem Morris /// Bio

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Clem Morris serves as the Chief of the Missile Defense Training Division responsible for the management of 11 institutional training programs within the Directorate of Training

and Doctrine. He entered active duty in 1978 in the Air Force, serving a career specializing in Space Operations. Tours of duty included 21st Space Wing, 14th Air Force, United States Space Command, Cheyenne Mountain Operations Center, and Air Force Space Command. He also served as an instructor, assistant course director, and course developer at the National Security Space Institute, Joint Ballistic Missile Defense System Training and Education Center, and the SMDC's Sensor Management Training Program. He holds a Master of Science degree in Information Technology and Education.

719-622-2916

USASMDC/ARSTRAT

Space and Missile Defense Institutional Training
A Course Guide of the

Who What Where When



By **Larry Mize**, Deputy Director, FWC DOTD &
SFC Gabe Cardenas, DOTD NCOIC





Ms. Rousseau

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Tactical Space Operations Course Space Operating System (TSOC-SOS)

Target Audience	ARSST, SSE, ASCE (AC/RC/NG).
Course Scope	Trains software tools for Space analysis; imagery reach and manipulation; Common Operational Picture.
Training Sites	Colorado Springs Based Training; unit funded mobile training. <i>SECRET approved facility</i>
Course Dates	25 Jul-12 Aug; 19 Sep-7 Oct
Course Length	10 days 80 hours
Prerequisite	Army Space Cadre Basic Course Phase 1

Tactical Space Operations Course TTP (TSOC-TTP)

Target Audience	ARSST, SSE, ASCE (AC/RC/NG)
Course Scope	Focus on Space TTPs associated with Space force enhancement areas to prepare Army Space Forces for deployment to CENTCOM AOR.
Training Sites	Colorado Springs Based Training; unit funded mobile training team. <i>SECRET approved facility</i>
Course Dates	25 Jul-12 Aug; 19 Sep-7 Oct
Course Length	5 Days 40 Hours
Prerequisite	Army Space Cadre Basic Course Phase 1

Tactical Space Operations Course Defense Support of Civil Authorities (TSOC-DSCA)

Target Audience	ARSST, DSCA mission support personnel.
Course Scope	Space force enhancement support to DSCA as relates to regional special domestic operations events and planning, Space TTPs for DSCA, DSCA organizations and legal considerations.
Training Sites	Colorado Springs Based Training; unit funded mobile training. <i>SECRET approved facility</i>
Course Dates	TBD
Course Length	3 Days 24 hours
Prerequisite	Defense Support of Civil Authorities Phase 1 online training



Mr. Russell

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Space Senior Leader Seminar (ssLS)

Target Audience	Active Army and Reserve Component officers grade 5-6; Selected NCOs in the grade of E9; Senior DA civilians who are designated as Army Space Cadre.
Training Sites	Colorado Springs Based Training
Course Dates	20-23 Sep
Course Length	4 days
Prerequisite	Centrally selected; Key Development Leader Positions

Army Space Communications System Operator Course (ACSOC)

Target Audience	1st Space Battalion and SMDC Staff elements.
Course Scope	Trains Soldiers to conduct ground mobile surveillance and assessment of Space systems in support of military and civil operations with equipment set.
Training Sites	Colorado Springs Based Training; classroom and equipment hands-on. <i>SECRET approved facility</i>
Course Dates	TBD
Course Length	10 days 80 hours
Prerequisite	Army Space Cadre Basic Course Phase 1; SATCOM EMI Fundamentals



LTC Berg

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Army Space Communications System Planner Course (ACSPC)

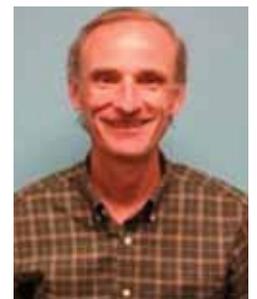
Target Audience	1st Space Battalion and SMDC Staff Elements.
Course Scope	Trains leaders in strategic to tactical planning and C2 of ground mobile surveillance and assessment of Space systems in support of military and civil operations.
Training Sites	Colorado Springs Based Training <i>SECRET approved facility</i>
Course Dates	TBD
Course Length	5 Days 40 Hours
Prerequisite	Army Space Cadre Basic Course Phase 1; SATCOM EMI Fundamentals

SATCOM EMI Fundamentals (SSA-IQT)

Target Audience	1st Space Battalion and SMDC Staff Elements.
Course Scope	Trains basic principles of EMI and foundational SATCOM, for understanding of EMI effects of satellite systems.
Training Sites	Colorado Springs Based Training <i>SECRET approved facility</i>
Course Dates	TBD
Course Length	5 Days 40 Hours
Prerequisite	Army Space Cadre Basic Course Phase 1

FA40 Space Operations Officer Qualification Course (sooqc)

Target Audience	Active Army and Reserve components, grade 3-5 who are designated FA40 Space Operations Officers and others approved by SMDC to attend.
Training Sites	Colorado Springs Based Training; Tour National, Joint, Service and Commercial Space Organizations. <i>SCIF approved facility</i>
Course Dates	7 Jun-25 Aug; 7 Sep-17 Nov
Course Length	11 weeks
Prerequisite	FA40



Mr. Berge

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Mr. Madsen

**michael.madsen@
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GMD Basic Course

Target Audience 100th MD BDE, 49th MD BN, DET 1-100 MD BDE.
Training Sites Colorado Springs Based Training; Mobile Training Team
Course Dates 6-10 Jun; 20-24 Jun (Huntsville); 11-15 Jul; 25-29 Jul
Course Length 5 Days 40 Hours
Prerequisite None

GMD Operator Course

Target Audience 100th MD BDE, 49th MD BN, DET 1-100th MD BDE.
Training Sites Colorado Springs Based Training.
SECRET approved facility
Course Dates 5 Sep-21 Oct
Course Length 7-week Qual Course
Prerequisite GMD Assignment

GMD Master Gunner Course

Target Audience 100th MD BDE, 49th MD BN, DET 1-100th MD BDE
Course Scope GMD gunnery, program management, operations, critical thinking
Training Sites Colorado Springs Based Training
SECRET approved facility
Course Dates TBD Jun
Course Length 3 Days 24 hours
Prerequisite GMD Soldier, GMD career track



Mr. Pond

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Joint Tactical Ground Station Leader Development Course (JTAGS-LDC)

Target Audience JTAGS Personnel SGT (P) and above.
Course Scope Advanced training in certification, TES events, mission operations, system administrations, communications and maintenance of the JTAGS system.
Training Sites Colorado Springs Based Training
Course Dates 18-29 Jul; 26 Sep-7 Oct (*Trained 5x/year*)
Course Length 10 days 80 hours
Prerequisite Graduate of JTAGS ITQ Course

AN/TPY-2(FBM) Sensor Manager Qualification Course (SMQC)

Target Audience	100th MD BDE, 94th AAMDC, 32nd AAMDC, 357th AMD-D
Training Sites	Colorado Springs Based Training. <i>SECRET approved facility</i>
Course Dates	6-23 Sep
Course Length	3-week Qual Course
Prerequisite	Sensor manager assignment

AN/TPY-2(FBM) Sensor Manager Leader Development Course (SMLDC)

Target Audience	100th MD BDE, 94th AAMDC, 32nd AAMDC, 357th AMD-D, JFCC-IMD, and Joint RFF support forces.
Course Scope	Trains radar capabilities/limitations, radar control, C2BMC, support to current OPLANs.
Training Sites	Colorado Springs Based Training. <i>SECRET approved facility</i>
Course Dates	22-26 Aug
Course Length	1-Week Qual Course
Prerequisite	Sensor manager Soldier

Sensor Manager Executive Course (SMEC)

Target Audience	100th MD BDE, AAMDC leadership and staffs, ADAFCOs, COCOMs
Course Scope	Trains advanced AN/TPY-2 (FBM) capabilities/limitations and employment concepts
Training Sites	Colorado Springs Based Training. <i>SECRET approved facility</i>
Course Dates	Jun (Ft. Sill); Jul (New Mexico); Aug; Sep (New Mexico)
Course Length	1-day orientation
Prerequisite	None

Joint Tactical Ground Station (JTAGS) IQT

Target Audience	1st Space Co (ASI Q4)
Course Scope	The JTAGS-IQT is a comprehensive course that provides training in the fundamentals of JTAGS operations, command relationships, system design and equipment functions, communications, event processing, crew procedures, and troubleshooting.
Training Sites	Colorado Springs Based Training; Tour National, Joint, Service <i>SCIF approved facility</i>
Course Dates	20 Mar- 6 May; 29 May-15 Jul; 7 Aug- 23 Sep
Course Length	7 weeks
Prerequisite	JTAGS assignment Active Army enlisted personnel qualified in MOS, 14J Warrant Officers qualified in MOS 140A Commissioned Officers qualified in AOC, 14A.



Mr. Berisford

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Mr. Hatfield

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ATRRS School House Code 129 ERB Training Completion Codes Course Codes

Codes	Course
XDD	Army Space Cadre Basic Course Ph I
XDE	Army Space Cadre Basic Course Ph II
XDF	Sensor Manager Qualification Course
XDG	GMD Master Gunner Course



Mr. Gehrke

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Army Space Cadre Basic Course Phase 1

Target Audience	Army Space Cadre Enablers, ARRST, CIT, JTAGS, 4th Space, Non FA40 Staff, NCOs, Civilians and Contractors.
Course Scope	Space fundamentals, mission area, organizations, & capabilities. Basic Space information for all SMDC/ARSTRAT Personnel
Training Sites	Colorado Springs Based Training. Unit funded remote training available provided by mobile training team. <i>SECRET approved facility</i>
Course Dates	12-16 Sep;& 2-9 Dec
Course Length	5 Days 40 Hours
Prerequisite	None

Army Space Cadre Basic Course Phase 2

Target Audience	Army Space Cadre Enablers, ARRST, CIT, JTAGS, 4th Space, Non FA40 Staff, NCOs, Civilian and Contractors.
Course Scope	Phase 2 trains advanced Space mission areas, Space control, Missile Defense, missile warning, Space acquisition, STO, ACCM, Annex N
Training Sites	Colorado Springs Based Training; unit funded mobile training team
Course Dates	20-24 Jun; Aug (Huntsville); 26-30 Sep
Course Length	5 Days 40 Hours
Prerequisite	ASCBC Phase 1

Advanced Space Operations School (ASops)

Located in Colorado Springs, The Advanced Space Operations School expands space system understanding by providing world-class, in-depth instruction of space systems, capabilities, requirements, acquisition, strategies and policies to support Joint military operations and U.S. National Security.

Fundamental Courses

Space and Missiles Intelligence Formal Training Unity (SMIFTU), Space Fundamentals Course (SFC), Space Operations Course Mobile (SOC-M), Space Operations Executive Level Course (SOC-E), Space Operations Executive Level Mobile Course (SOC-E/M) and Introduction to Space (ITS)

Deployment Preparation Courses

Director of Space Forces Course (DIRSPACEFOR OR DS4), Space Warfighter Prep Course (SWPC), Weapons School Preparation Course (WSPC)

Advanced Courses

Advanced Orbital Mechanics Course (AOM), Missile Warning and Defense Advanced Course (MWDAC), Satellite Communications Advanced Course (SATCOMAC)



MAJ Hinkle

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XDH Joint Tactical Ground Station-IQT
XDI Joint Tactical Ground Station-LDC
XDJ Missile Defense Operator Course
XDK N2C2 Basic Course

XDL Small Group Training Instructor Course
XDM Army Space Cadre Senior Leader Seminar
XDN System Approach to Training Basic Course
XDO Space Operations System
XDP Tactics, Techniques, and Procedures

GMD Command Launch Equipment (CLE) Operator Qualification Course (coming 2013)

Target Audience 100th MD BDE, 49th MD BN, DET 1-100 MD BDE
Course Scope Trains CLE system behavior, role in GMD, CLE daily ops
Training Sites Colorado Springs Based Training
Course Dates Sep Validation; Begin training FY 13 at J-GTEC with DOTD Instructors
Course Length 2-week Qual course
Prerequisite CLE operator assignment

BMDS Asset Management (BAM) Course

Target Audience 100th MD BDE, 49th MD BN, DET 1-100th MD BDE, 94th, AAMDC, 357th AAMD-D, JFCC-IMD, JFCC-SPACE, and DIA.
Course Scope Trains BMDS Overview Asset TTP, policies & procedures Asset Management impact on the BMDS community C2BMC OPS CAP reporting.
Training Sites Colorado Springs Based Training
SECRET approved facility
Course Dates TBD
Course Length 1-Day Qual course
Prerequisite GMD/BMDS Assignment.



Dr. Harnly

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National Security Space Institute (NSSI)

Located in Colorado Springs, the National Security Space Institute is the Department of Defense's single focal point for Space education and training, complementing existing Space education programs at Air University, the Naval Postgraduate School and the Air Force Institute of Technology.

Space 200 Course (SP200)

The course investigates three major areas: Space Systems Engineering, Space Power and Space as a Contested Environment.

Space 300 Course (SP300)

Develops Space professionals who understand national policy considerations and strategic thought within an international geopolitical environment. Students will be able to critically address Space acquisition capabilities, and power at the operational and strategic levels across the range of military operations as well as Space power's strategic contributions to national security.





FA40 Career Management

Section Coordinator MAJ Glen Hees



MAJ Glen Hees //// Bio

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Commissioned as an Aviation Officer, MAJ Glen R. Hees is currently serving as the FA40 Assignment Officer at the Human Resources Command, Fort Knox, Ky. His Space assignments have included Brigade Space Planner, Space Control Division Chief, G3 Training and Readiness Branch Chief, Combat Operations Division Officer (Qatar), and Commander, 4th Space Company. He is a graduate of the Space Operations Officer Qualification Course and the Tactical Space Operations Course.

502-613-6684
DSN 983-6684

Most Commonly Asked Questions

1. I HAVE AN OER THAT HASN'T HIT MY OMPF YET. I'VE ATTACHED IT, CAN YOU PLEASE GET IT ADDED?

Unfortunately, no. Officer Evaluation Reports must go through the proper HQDA channels for upload through the Evaluations Branch of Human Resource Command. Assignment Officers are strictly advised that this chain is important and must be adhered to. The important thing is to check with whomever sent the OER to HQDA through MyForms. That individual's MyForms should indicate that the OER was "Accepted by HQDA" if it has made it through correctly. You should then monitor the progress of your OER through the screening process by checking the following website: <https://knoxhrc16.hrc.army.mil/iwrs/>

Once the status reflects "completed" you should see your OER in the Official military Personnel File in the next 24-48 hours. Also, if you are in a board status for promotion/selection, your OERs are automatically flagged for expedited processing based on your social security number when it is accepted. There is nothing the assignment officer can do to further expedite the process. The most important thing an Officer can do is to ensure their OERs are being processed by their unit in a timely manner, especially with an upcoming board. Know when your OER is due and stay on top of it.

SPECIFIC CAREER QUESTION YOU WOULD LIKE TO SEE ADDRESSED

I will work to get an answer for you.
glen.r.hees@conus.army.mil



2. SHOULD I GET A PHOTO IN MY ASUs FOR THE BOARD OR ARE MY GREENS OKAY?

The best advice I can give here is to wear the one that fits best! The Army Class A uniform is still approved for wear until 2014, and therefore is completely acceptable for DA Photo purposes. The past few promotion/selection boards have been split almost 50/50 between those wearing ASUs and Class As. There is absolutely no indication that wearing one or the other has been a factor in promotion or selection.

3. ANY WORD ON MY MAJ/LTC PROMOTION BOARD RESULTS?

Boards and releases are fairly predictable as the boards are held generally the same time each year, and the results are released at the same time each year, give or take a week or two.

- MAJ Promotion: Board held in October/November, results in late March/early April
- LTC Promotion: Board held in February, results in late July/early August
- Senior Service College Selection: Board held in April, results in late July/early August

A MILPER Message will be published ahead of the board results to let everyone know when the results will be officially released.

4. I HAVE A CHANGE TO MY ORB, CAN YOU DO THAT FOR ME?

Officer Record Brief changes and document uploads to iPERMS should be handled by your unit's S1. Your admin section has the ability to make changes on your ORB that even the assignment officer does not have. The assignment officer is the last resort for ORB changes, the exception being those Officers who are in units that do not have an Army element providing admin services, or are deployed. Additionally, during boards I dedicate my efforts to those who are preparing their board files. During that time, I look closely at each ORB and make changes/adjustments as necessary and requested. If you have a question pertaining to the accuracy of your ORB, feel free to ask, but always utilize your admin section first.

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ARMY SPACE CADRE SYMPOSIUM

<https://www.us.army.mil/suite/page/343526>

Aug 1-5





USASMDC/ARSTRAT

Flipside^{2.0}

FEATURES



No your eyes are
not deceiving you.

These next pages

are flipped by design.



*The following
pages should be
turned over to
continue reading.*



LTC Patrick MULLIN

Recipient of the Bernard Schriever Award

By Rachel L. Griffith, USASMDC/ARSTRAT

LTC Patrick Mullin, Operations Officer, 1st Space Brigade, was recently honored with the Bernard Schriever award in honor of General Bernard Schriever, who is known as the “Father of the United States Air Force Space and Missile Programs.” Mullin received his award at the 54th annual Space Club Goddard Memorial Awards dinner, in Washington, D.C.

“I feel honored and humbled to receive this award. I realize that there are many other military Space professionals around the globe working hard to ensure that space capabilities are available and I am fortunate to be singled out for recognition.” Said Mullin.

The award recognizes excellence in military Space operations and acquisition in honor of General Bernard Schriever. Part of the citation recognizing Mullin read:

“LTC Mullin is recognized for his outstanding leadership and support to military operations in Iraq and Afghanistan, as well as USSTRATCOM and regional Combatant Commanders across the globe. LTC Mullin’s exemplary leadership and dedication ensured delivery of a full spectrum of optimized Space efforts in support of Army, Joint, and Coalition Operations.”

Goddard Awardees are recognized by their colleagues from across government, industry and academia. Awards were presented to a number of outstanding individuals for accomplishments in spaceflight, engineering, science, management and education.

Army Space Support Overseas from page C1

of the importance of the Soldiers assigned to the brigade. Their contributions cannot be overstated.

There have been numerous challenges within the brigade relating to Japan recently. The main efforts we have faced are typhoons, floods, and earthquakes. Joint Tactical Ground Station Japan, 1st Space Battalion, and Echo Company, 53rd Signal Battalion have not only maintained their operational focus and contribution to the Department of Defense’s overall mission, but have assisted the people and government of Japan. Convoy relief, civilian evacuation, and supply delivery are among the myriad tasks our units have superbly performed. CSM Ross and I are proud to have such a poised, confident, fit, courageous, and flexible group of professionals.

The 1st Space Brigade completed its move into our new leased headquarters last month. We are proud of our new facility and grateful to those staff sections and agencies that provided assistance in our short journey. Additionally, we continued to support numerous worldwide exercises and operations. There is no other brigade-sized element in the Army that is asked to continuously support every combatant command across the globe, support a mission readiness exercise and other major exercises, and train and deploy our National Guard service members. Of note was the brigade’s support to Global Lightning/Austere Challenge, where 1st Brigade Soldiers were supporting the exercise in three distinct nations.

I often share with the Soldiers in our brigade that we are “Soldiers Who Do Space” not “Space Soldiers.” The various leadership teams across the brigade handle the “blocking and tackling” aspect of our jobs every day. In spite of the technically challenging and intellectually demanding aspect of working in the Space environment, we must continue to hone those basic skills that bind us all together as military professionals. One of the greatest aspects of this belief is the incredible performance and recognition of our Soldiers.

Farewell to USASMDC/ARSTRAT from page C1

to the Warfighter has been unbelievable. Not only has our troop strength grown exponentially, but our ability to provide Space support has increased in almost every area. I’m very proud to have played a small part in the maturing of the operational missions within the command.

The campaign in Iraq and Afghanistan, though primarily a ground engagement, is a major demonstration of Space operations. The Warfighters’ reliance on Space has never been stronger, and without it they cannot navigate, target, or communicate with the precision that sets our military apart. Please continue to look for innovative ways to better support the fight.

Today, the 1st Space Brigade can boast of fit, disciplined, and cohesive Joint Tactical Ground Station, Army Space Support Team, Commercial Imagery Team, Space Control, and Special Mission detachments that are led by skilled and versatile leaders who continue to raise the bar in Space operations. It has been an honor to stand shoulder to shoulder with all of you. I will miss you and hold all of you in high esteem.

**You do ... SECURE THE HIGH GROUND!
All the best – Godspeed – First in Space!**



100th Missile Defense Brigade

Leader Notes

The Other Half of USASMDC/ARSTRAT from page 1F

tance of these low-density, high-priority units. And the 100th Brigade accepted transfer of the

100th Missile Defense Detachment (AN/TPY-2), with more detachments on the horizon. While the AN/TPY-2 radar is primarily a Missile Defense radar, in the future it may play a role in Space situational awareness, further blurring the lines between Space and Missile Defense operations. In short, it has been a good year, and the two communities are coming closer together.

The change in our professional journal will also enable us to begin a scholarly, professional exchange of ideas within the strategic ballistic Missile Defense community. The 100th Brigade is organized under SRC 40; as such, we fall outside many of the professional discussions occurring within the Air and Missile Defense community at the Fires Center of Excellence. The change in strategy and the emergence of the European Phased Adaptive Approach, coupled with emerging threats and diminishing resources, will generate a large number of topics as the Army grapples with the future of Missile Defense. The Army Space Journal's expanded focus will provide a valuable forum to discuss issues that will affect the command for years to come.

In a recent visit to Fort Greely, LTG Richard Formica repeated his view that the missile defenders there are at the "tip of the SMDC spear," and he considers them critical to our national security. They are. While some of the luster of Ground-Based Midcourse Defense has faded because it is no longer a new program, the mission remains very critical and has the attention of our senior leadership. The homeland defense mission received significant discussion in recent congressional hearings, and we are still seeing a significant number of flag officers and congressional staffers visiting the sites. EPAA may be the in the news, but GMD remains a very high-priority mission for the Department of Defense.

We are entering into what I refer to as the "sustainment phase" of GMD; the final portions of the system are being built out, and our 24/7 mission has become somewhat routine. That said, a quick analysis of current trends in ballistic missile development and proliferation leads to an inevitable conclusion: Missile Defense is here to stay. Ballistic missiles provide a superb asymmetric capability for an adversary; they are relatively inexpensive, can carry a variety of payloads, and are very difficult to defend against. As more nations obtain this technology, the threat to our homeland, friends, allies and deployed forces will continue to grow. The GMD system will remain a cornerstone of the Ballistic Missile Defense System for years to come.

As with Missile Defense, our reliance on Space systems will continue to grow. Having two "growth industries" under the same command will result in some challenges, but also in some opportunities. In an era of persistent conflict and diminishing resources, it is more important than ever that we leverage our capabilities, grow our cadre of Space and Missile Defense professionals, and posture ourselves for an uncertain future.

The expanded constituency of our professional journal into Space and Missile Defense operations is certainly a step in the right direction.

One Team, One Fight! from page 1F

capabilities (and limitations) of the assets that support the fight.

Current and future developments also open a door of opportunity that the 100th Brigade may be tasked to help support Space operations as well. With the 100th Missile Defense Brigade taking ownership of the current and future AN/TPY-2 radar detachments, there is the likelihood that missile defense operators will be involved in some aspects of the Space mission, through the use of these radars, and components such as the Command and Control Battle Management and Communications system (C2BMC).

USASMDC/ARSTRAT has two brigades with very distinct missions. However, there is similarity between these two unique brigades. Both brigades are multi-component organizations. The 1st Space Brigade is primarily an Active Component force, but contains elements of both the Army National Guard, and the US Army Reserve. Meanwhile, the 100th Missile Defense Brigade is primarily an Army National Guard force, but also includes elements from the Active Component. We each have (or soon will have) forces deployed to at least three different continents. Of course the greatest similarity of all is the technical and tactical competence, unwavering motivation, pride, and "warrior spirit" of the professional Soldiers assigned to both units.

The regular inclusion of missile defense operations into the Army Space Journal will have a positive effect on our profession as Space and missile defense warriors. It will provide us all with a professional forum in which to share information, exchange ideas, and highlight the accomplishments of these proud organizations. By doing so, it will also help strengthen the bond between Soldiers of both brigades, and across the Space and missile defense profession. It will give further credence to the statement "one team, one fight!"

"Guard, Engage Destroy;" "First in Space;" "Secure the High Ground!"

MAJ Michael Tobey



100th Missile Defense Brigade (GMD) officer named “Missile Defender of the Year”

By MAJ Laura Kenney, 100th MD
BDE (GMD) Public Affairs Officer

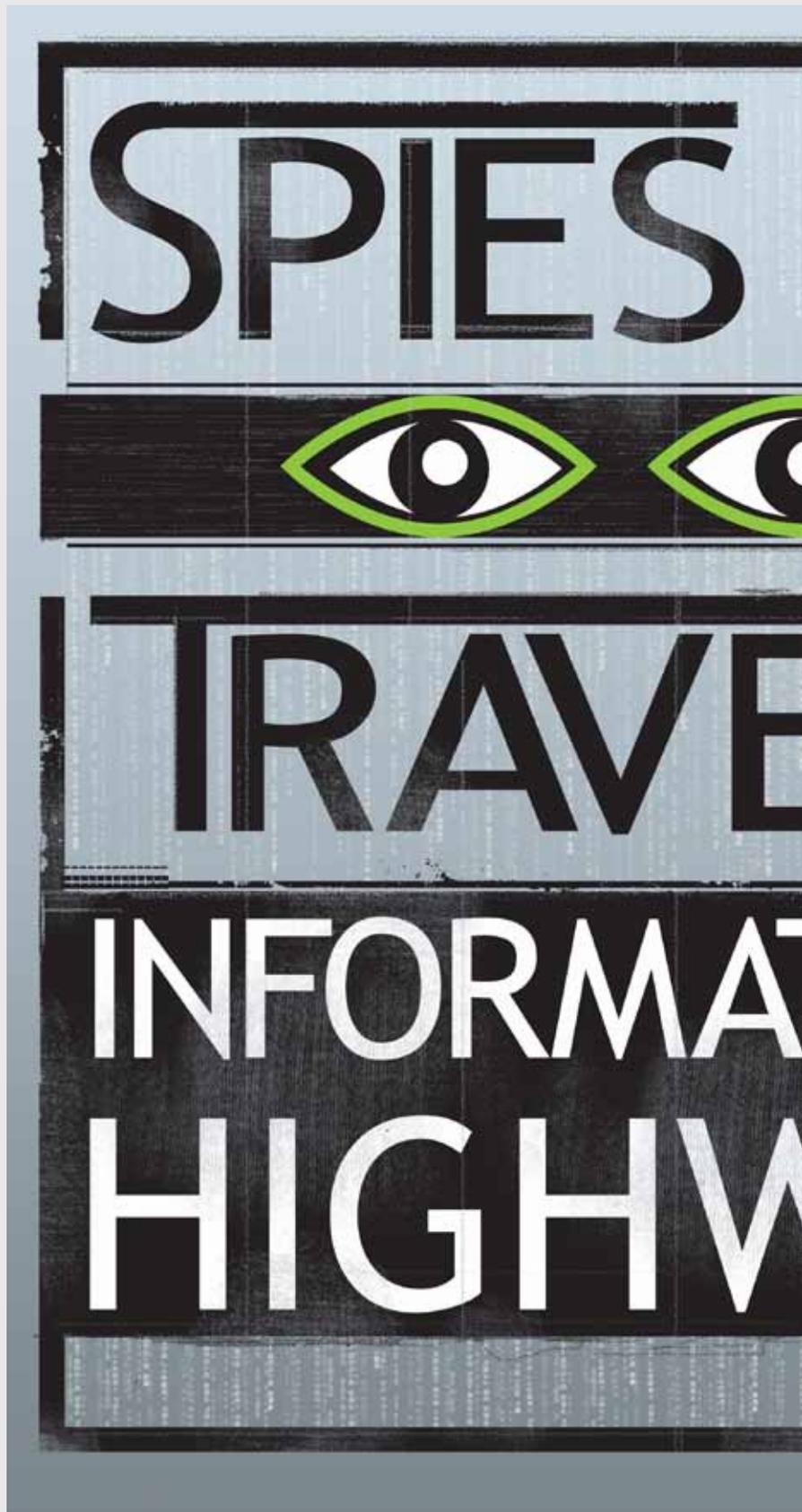
In a star-spangled (many generals present) ceremony held Jan. 14, MAJ Michael Tobey was honored by the Missile Defense Advocacy Alliance in being chosen as Missile Defender of the Year to represent the Army National Guard. Tobey, a member of the 100th Missile Defense Brigade (GMD) received the award from BG Kurt Story, Deputy former Commanding General.

The MDAA is an organization formed to recognize and support the aims of a national missile defense. The ceremony, held in Alexandria, Va., was an inaugural event. It was held on the date considered to be the 20th anniversary of the first successful wartime use of active U.S. missile defenses to protect and defend America’s armed forces and allies. The use of Patriot missiles during Operation Desert Storm against missiles launched from Iraq laid the groundwork for today’s multi-layered, joint service missile defense that protects our nation against hostile missile attack.

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. Each individual is considered to represent the best in leadership and personal effort and to have demonstrated his or her commitment to excellence. Tobey is the Assistant Operations Officer at the 100th MDB (GMD). He is a 1995 graduate of the United States Military Academy.

“It is truly an honor to be recognized by the Missile Defense Advocacy Alliance for the contributions made by the 100th Missile Defense Brigade (GMD). I view my selection not as an individual award, but rather as a reflection of the hard work and dedication of all members of this Command,” said Tobey.

The 100th MD BDE (GMD) is a multi-component unit comprised largely of full-time National Guard Soldiers, with a small contingent of Active Component Soldiers. Headquartered in Colorado Springs, Colo., the brigade has subordinate units in Alaska and California.





□ Espionage today is hardly like we once knew it. For the most part, researchers make up today's "spies."

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

An old poster from World War II reads: "Loose Lips Sink Ships." The vision of our Sailors at war drowning at sea was a powerful reminder that security begins with each one of us. Today we tend to think such concerns are outdated and ripe for the museum. We hear about economic espionage, and our eyes glaze over. Do we really believe that the world we live in is still concerned with such a threat to our national survival?

Consider the following. Deployments of our Soldiers all over the world require that they not be taken by surprise: that the equipment they use is capable of dominating any battlefield. Abstract ideas like this mean little to the average listener. Just try to personalize the idea. What if your son or daughter depended on you to keep them alive? You would do everything in your power. But first you would have to be fully informed about the threat out there facing them.

Espionage today is hardly like we once knew it. For the most part, researchers make up today's "spies." Yesterday's spy was equipped with poison pens and secret cameras. Today's collector is equipped with a lap-top computer and modem, not to mention a current library card. He reviews data banks, technical journals, and open publications for profit. He looks for indications of new ideas, trends, or new conditions that may affect his own country in some way. He does not need to steal what he can read free of charge.

Armed with this basic knowledge, today's spies set about to gather specifics. They look for the specific people who have the specific information. Aware that

most Americans protect classified information, the modern spies look for things "on the drawing board", which can be acquired before the classification stamp is put on.

Being a patient person, the modern collector then listens. He listens to our open phones, open faxes, open computers, and after-hour discussions. We love to talk. We are active, while the collector can be passive. He knows that our national trait of impatience with methodological security measures will ultimately betray us. He simply has to wait for us to talk around classified information in open restaurants, on planes, and especially on the telephone.

You'll notice that I haven't mentioned which country the new collector represents. He could even represent a company. Economic advisors openly advertise in our newspapers on ways to get a jump on the competition. The ideas range from soliciting information for payment from enterprising or disgruntled employees, to eliciting information at conferences and symposia open to the general public.

What is the best defense against this new method of economic voyeurism? Know what you must protect! Prior to any meetings, have your team discuss what will and what will not be discussed, and then stick to it. Check before you publish. Assume that if you say it out in the open, it is compromised.

There is enough proof in the field today to show that there is no safe, open means of communication. Today's collector won't break the law if he doesn't have to. He'll just listen.

MAJ Robert Metcalf looks on with his daughter as his son Alex shows a Dr. Seuss book to COL Douglas Wheelock.



WELCOME HOME

Wheelock Greets Building 3 with Signatures & a Smile

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

18F



COL Douglas Wheelock, U.S. Army Astronaut, signs a Space-themed tie for a fan during an autograph signing event in Colorado Springs.

PETERSON AIR FORCE BASE, Colo. — At an elevation of more than six thousand feet, Colorado Springs is one of the closest cities to Space in the United States. This should make Army Astronaut COL Douglas Wheelock feel right at home. As the commander of the International Space Station, Wheelock spent six months in Space, leading the international crew of Expedition 25. The five-member crew returned to Earth this past November. On March 9, Wheelock stopped at the headquarters building, USASMDC/ARSTRAT to visit with personnel and their families.

Wheelock was the first Army Astronaut to command the International Space Station, and has become even more of a local hero for the command. Former USASMDC/ARSTRAT Deputy Commanding General for Operations BG Kurt S. Story came down to the building lobby to greet the recently returned astronaut, and motioned to a copy of the Army Space Journal with the headline “First in Space.”

“This is an Army first. That needs to go in the lobby, right up there ‘First in Space,’” Story told the crowd, motioning to a wall near the main staircase.

One young fan brought her blanket to show Wheelock and ask him if he brought a blanket into Space.

Wheelock leaned in to whisper “Shh...it’s a secret. Yes, I sleep with one every night in Space. But don’t tell anyone, okay?”

SPC Roger Rodriques asked Wheelock his favorite thing about being an astronaut. “Talking to kids when I visit the schools. That’s absolutely my favorite part, just being able to share what I do with the younger generation, and inspiring them to achieve their dreams,” said Wheelock.

Wheelock signed most photos with inspirational sayings including “I hope all your dreams come true” and “Aim High! Touch the stars!”

Several parents also had him write special comments to their children, telling them to “keep doing math” and “stay in school.”

Wheelock stayed to sign for nearly three hours, talking with fans, taking photos and answering any questions about his mission. While he was in town, he also spoke to classes at the National Security Space Institute about his mission, and signed autographs for families on Fort Carson. He now returns to his home station at the Johnson Space Center in Houston, Texas.

CPT Michael Hance, team leader for
Commercial Imagery Team 5, 117th Space
Battalion, Colorado Army National Guard



1st Space Brigade

SENDS 3 TEAMS IN THEATER

By DJ Montoya, 1st Space Brigade, Public Affairs
Photos by Craig Denton, USAF

PETERSON AIR FORCE BASE, Colo. — The 1st Space Brigade recently hosted a farewell ceremony at the Peterson Air Force Base Theater for 16 Soldiers who will deploy into the U.S. Central Command theater of operations to support Overseas Contingency Operations.

These Soldiers make up Commercial Imagery Team 5 from the 117th Space Battalion, Colorado Army National Guard; Army Space Support Team 5 from the 1st Space Battalion; and Army Space Coordination Element 5 from the 1st Space Brigade.

According to officials, 57 units have had successful rotations in the theater of operations since the brigade started deployments. These three teams will become the 58th, 59th, and 60th.

“Your loved ones are well trained, resourced, and well equipped to succeed in their mission,” said COL Eric P. Henderson, commander, 1st Space Brigade, to those in attendance.

The mission of these deployed units is to provide Space-based products and services to combatants, new republics/governments, and international agencies.

Each commander took time to address their respective team and its relevance.

“A commercial imagery team is a unique entity made up of seven Soldiers,” said LTC Jesse Morehouse, commander of the 117th Space Battalion.

“They are the only Soldiers in the entire theater of war that do what they do. They have got to figure out how to

do their best supporting the Soldiers, our coalition partners, countries, and other Space professionals out there in theater. Our commercial imagery teams have been doing a great job of that, and I expect you all will raise the bar higher before you are done in theater.”

“CIT 5 I know the next nine months will not be easy, but I appreciate all the sacrifices that you are making. We look forward to seeing you back here safe and sound.”

LTC J. Dave Price, commander, 1st Space Battalion was next.

“I’m excited about ARSST 5. They are going to make a significant difference and they are definitely ready to go. I would like to say that if you asked us to go anywhere else in the world to operate at the national level we are ready and we are anxious to get started.

“I would like to thank the many families who are here to support the departure of loved ones. I want to remind you that we are ready and willing to support you in anything that you need in your spouse’s absence.”

Finally, Henderson took to the stage to talk about ASCE 5.

“One of the interesting things about the ASCE is that they are the integrators of Space products. They are the ground commander’s link to the Air Force and the combined air operations center. They work a lot of long, long, hours.

“What is unique about the ASCE is they don’t exist on paper. However, it does in doctrine, but in order for us to support this task someone has to pick up the slack. And why do we do it? Because as we will see in a couple of minutes during The Army Song – ‘Proud of all we have done, Fighting till the battle’s won.’”

It is a tradition that the brigade or battalion commander presents the senior Soldier on each deploying team with a mission coin. This coin is entrusted to the team leader for safe keeping throughout the operation. Upon safe return at the end of the deployment the coin is then placed on a plaque and displayed in the brigade or battalion Headquarters.

Daniele Miller from the Colorado National Guard Family Program also presented the Colorado Guardsmen of CIT 5 with a Colorado state flag.



MAJ Jason Needler, team leader for Army Space Support Team 5, receives ‘the mission coin’ from LTC J. Dave Price, commander of the 1st Space Battalion.

CPT Joseph Leppert, Space Operations, Officer for the 100th Missile Defense Brigade (Ground based Mid-course Defense), takes aim during the unit's trip to the Engagement Skills Trainer 2000 at Fort Carson, CO.



RANGE DAY

100th Missile Defense Soldiers Take Aim at M-9 Range

Story and Photos by SGT Benjamin Crane,
100th Missile Defense Brigade Public Affairs

16F



SFC Bryan Ginnetti, planning and operations noncommissioned officer, and CPT Robert Waddington, assistant planning and operations officer for the 100th Missile Defense Brigade, walk onto the live shooting range during the unit's pistol qualification range at Fort Carson.

FORT CARSON, Colo. – Under a sunny sky at the Army's Mountain post, Soldiers from the 100th Missile Defense Brigade (Ground based Midcourse Defense) brushed up on their marksmanship during a visit to the range March 10.

For a unit better known for sitting in front of computer screens, getting the chance to hone basic Soldiering skills was a nice change of pace.

To better prepare themselves for the live range, 100th Brigade Soldiers practiced on the Engagement Skills Trainer 2000, Fort Carson's electronic indoor range.

The EST 2000 is an effective way to train Soldiers without the waste of ammunition and the use of real weapons. The program provides a realistic representation of a qualifying range and the guns used, although fake, are exact replicas of the real Beretta M-9 pistol. The gun uses a laser to communicate with the program and act like bullets hitting the target.

"There was value-added to utilizing the EST 2000. I would recommend that tool to any unit who does not fire their assigned weapons on a monthly or quarterly basis, or who might just require some additional marksmanship instruction," said CPT William Shanahan, commander for Headquarters and Headquarters Battery.

Soldiers took part in familiarization training in addition to work with the EST.

"The basic goal was for everyone to qualify. In order to do this, we conducted EST 2000 training, and primary marksmanship instruction prior to, and on the range," said Shanahan.

Many of Soldiers came out to the range just thinking about hitting the 16 targets they needed to qualify.



SGM Herbert Rodriguez, operations sergeant major for the 100th Missile Defense Brigade (GMD), shoots his M-9 pistol at the targets, during the unit's pistol qualification range.

“My goal was to qualify,” said SPC Cristina Cost, an assistant Local Area Network (LAN) manager for the 100th. “This was only my second year of qualifying with the M-9 and I didn’t have the confidence I would qualify, but I did.”

But a few Soldiers wanted to aim for a higher goal.

“I set out to do my best,” said SGT Brenden Good, an assistant LAN manager. “[I] was hoping to shoot expert and I did very well. I got 29 out of 30.”

Overall, the day was a success according to Shanahan and other brigade senior leaders.

“In my opinion, it went very well. Sixty-one personnel showed up, we had a 100 percent GO,” said Shanahan.

As with every Army training event, there were challenges the leaders from the 100th had to overcome and learn from.

“Working with Fort Carson always presents a set of training challenges due to the different training philosophies between the Active component and the National Guard,” said Shanahan. “We overcame and conducted a very successful small-arms qualification. We now have a better idea of the process, and the requirements Fort Carson has to train, and we will continue to refine our process to always improve training.”



CW1 Adam Johnson uses the electronic version of an M-9 pistol during the 100th Missile Defense Brigade (GMD) trip to the EST 2000 at Fort Carson. The unit later went to the live range on Fort Carson to qualify.



A GPS base station setup by West Point's Surveying class for Real Time Kinematic Surveying. This project involved West Point, the United States Coast Guard Academy, and Mitchell College students. There were three different projects involved in this effort, mapping and removal of invasive plant species, temporal change of the beach, and a survey stake out for the design and construction of a boardwalk civil engineering project. From left to right - MAJ Hannon Didier, Mr. David Shirley (Keystone Precision Instruments), Mitchell College Students, and MAJ Wright in ACU's. *U.S. Army Photo*

are neighborhood operations, map transformation, spatial interpolation, terrain analysis, network analysis, spatial overlay, fuzzy sets, neural networks, and expert systems. In-class practical exercises and laboratory assignments complement the lectures by providing hands-on experience with a variety of advanced analytical techniques. The course culminates with a capstone term project that allows cadets to identify a scientific problem, formulate a hypothesis, use GIS to solve the problem, and then present results of their analysis. Cadets are also encouraged to use their GIS skills in other related courses, such as Air Pollution Engineering, which give cadets a more comprehensive understanding of the atmosphere and other relevant topics.

EV377/EV477, Remote Sensing is the second set of sequence courses that center on the use of satellites to study the Earth. This course emphasizes one of the Space Force enhancement areas, while using both commercial and classified imagery. Cadets enjoy a wide range of practical exercises, which introduce them to several remote sensing systems to include conventional and color infrared photography, multi-spectral scanners, satellite imagery, thermal infrared, and radar. The capstone exercise offers each cadet the opportunity to perform real-time automated image classification using satellite data on their personal computer.

In the advanced class, cadets examine advanced remote sensing theory and digital image processing techniques suitable for the processing of remotely sensed data. Emphasis is on the processing and analysis of state-of-the-art high spatial and spectral resolution data gathered by both airborne and satellite sensors. Topics covered include geometric and radiometric image rectification, registration and re-sampling techniques,

image enhancements, data merging, image segmentation and automated feature extraction. A wide range of practical exercises and in-class laboratory assignments provides hands-on experience with a variety of remotely sensed imagery ranging from multi-spectral to hyper-spectral data. The course culminates with a capstone term project that allows cadets to apply digital image processing skills to a scientific problem.

Acquisitions and Development

Another role of FA40s is to oversee the research and development, as well as acquisition of Space technologies and hardware. Two courses focus on the application of physics and engineering to Space hardware. PH495, Physics of Rockets, Missiles, Radar and Missile Defense Systems is taught by the Department of Physics & Nuclear Engineering. CS485, Space Systems Engineering is taught by the Department of Electrical Engineering & Computer Science. The two courses offer complementary perspectives on the engineering of hardware for Space applications.

PH495 challenges cadets to integrate and apply, in a weapon system development context, the fundamental physics of rockets and missiles, electromagnetic wave generation, propagation and reflection in radars and lasers, and the flight performance of guided missiles. It links sensors and missiles with a fire control system that will result in a complete weapon system capability. An integral part of the course is to determine proper selection of system component capabilities to provide a balanced combination so the individual missile defense system will have the desired weapon system capability.

CS485 introduces future leaders to working a variety of problems dealing with the Space environment, Spacecraft



MAJ Diana Loucks reviews the Physics behind Kepler's Laws, specifically derivation of the law of periods during Introductory Physics. U.S. Army Photo

design, Spacecraft subsystems, and military satellite operations. Specific goals of the course include introducing cadets to the concepts of orbital mechanics, Space weather, Spacecraft design and integration, and project management. It maintains a focus on mission design, Spacecraft structures, electrical power systems, data handling, communications, altitude control, and test and integration. The overall goal of this course is to produce more technically and operationally proficient leaders with a solid understanding of the basic Space sciences prior to entering the Army. The course enables cadets to understand the fundamental design and operations of military Spacecraft, as well as the missions they perform.

Relevance to Current Operations

The academic material coupled with the strong emphasis on teamwork play important roles in developing future officers for Space operations. Of import are the understanding of the Space environment, how to maneuver and operate in it, the employment of Space technologies for world-wide operations, as well as the design of Space technologies to achieve a particular mission and the communication of that design to decision makers. The education that we provide our future leaders must continue to expand as the role of Space in the Army continues to increase.

Co-Authors

Diana Loucks is an FA40 officer and instructor in the Department of Physics and Nuclear Engineering at the United States Military Academy. She has a master's degree from the University of Colorado in AeroSpace Engineering Sciences and teaches introductory calculus based Physics, Modern Physics and Space and Astrophysics. MAJ Loucks' academic and research interests include Space education, balloons and nanosatellites.

Dr. Ken Chadwick is currently Senior Staff, Optical Systems Technology Group at MIT Lincoln Laboratory and assigned to the United States Military Academy as Assistant Professor of Physics and Director of the U.S. Army Space and Missile Defense Research and Analysis Center. He received a Bachelor of Science degree in Mechanical Engineering from Northeastern University and M.S. and Ph.D. degrees in AeroSpace Engineering from Virginia Tech. He joined the Laboratory in 2000 after having spent eight years at Calspan in Buffalo, N.Y. as Head of the Hypersonic Aerodynamics and Propulsion section and Head of the AeroSpace Sciences Department. He joined Lincoln Laboratory in the AeroSpace Engineering group and served as technical staff, assistant and associate group leader (acting group leader) while managing several missile defense, flight hardware development and test, countermeasure and targets programs.

Jessica Mikhaylov holds a National Research Council Davies Fellowship in the Department of Mathematical Sciences at the United States Military Academy. She earned her Ph.D. and Sc.M. in Applied Mathematics from Brown University and her M.S. in Mechanical Engineering from Rensselaer Polytechnic Institute. Prior to her current position, she worked in industry as a Senior Engineer and Systems Analyst for the Missile Defense National Team. Her academic interests center around the mathematical modeling and analysis of complex systems with applications ranging from medical imaging to missile defense.

Andrew Pfluger is an FA40 officer and instructor in the Department of Geography and Environmental Engineering at the United States Military Academy. He has a master's degree and a Degree of Engineer from Stanford University in Environmental Engineering. MAJ Pfluger teaches Air Pollution Engineering, which incorporates aspects of Geospatial Information Science into its curriculum.

Thomas Pugsley is an FA40 officer whose previous assignment was a assistant professor in the Department of Electrical Engineering and Computer Science at the United States Military Academy. He has a master's degree from the Naval Postgraduate School in Space Systems Operations, and taught courses in Space Systems Engineering and Spacecraft Development and Design. MAJ Pugsley's academic and research interests include spacecraft design, payload development, and orbit optimization. He is currently assigned to U.S. Army Pacific as a Space Operations Officer.

William Wright is an FA40 officer and assistant professor in the Department of Geography and Environmental Engineering at the United States Military Academy. He has a master's degree from the University of Florida in Civil Engineering, and teaches courses in the Geospatial Information Science program including Surveying, Geographic Information Systems, Cartography, Remote Sensing, and Physical Geography. MAJ Wright's academic and research interests include light detection and ranging, GPS, and geographic information systems.

EDUCATING FUTURE LEADER

Story by Diana Loucks, Dr. Ken Chadwick,
Jessica Mikhaylov, Andrew Pfluger,
Thomas Pugsley, and William Wright

about Space at West Point



MAJ William Wright teaching class U.S. Army Photo

The employment of navigation, communications, weather, and intelligence assets based in Space makes possible the precise nature of our operations.

The United States Military Academy, commonly known as West Point, has produced junior Army leaders since its inception in the early 1800s. While the purpose of West Point has evolved over the last two centuries, its fundamental mission has remained relatively stable:

“To educate, train, and inspire the Corps of Cadets so that each graduate is a commissioned leader of character committed to the values of Duty, Honor, Country; and prepared for a career of professional excellence and service to the nation as an officer in the United States Army.”

Space Operations Officers in Functional Area 40 primarily support this mission by bringing their operational and technical experience to the courses that they teach at West Point. By doing so we ensure that an ever increasing number of lieutenants enter the Army with the fundamental knowledge of how Space-based capabilities are intertwined into day to day Army operations – a role that is even more critical now that Army officers are making career field designation decisions at both four and seven years of service.

The most established venue for FA40s to pass knowledge of Space-related topics to cadets is in the classroom. Every teaching day USMA professors teach multiple classes (or sections) consisting of 15 to 20 cadets. Currently, FA40s have the unique opportunity to teach eight classes offered within four academic departments. Brief descriptions of the courses and their relevance to Space are discussed in this paper. Our ultimate goal as instructors and as Space Operations Officers is to inspire cadets interested in Space, and educate them so that they can make informed decisions not only about the employment of Space technologies but also about their choices in the CFD process.

MAJ Diana Loucks working with a group of Yearlings during Advanced Introductory Physics.

FROM LEFT TO RIGHT are Cadets Shane Greaves, Kurt Yeager and Dylan Hanna. U.S. Army Photo



An Introduction

A primary role of FA40s is to advise commanders at all levels on Space based applications and their impact on current operations. This spans all branches of service and covers a wide range of topics from satellite constellation management to the impact of Space weather on operations. To do so, Cadets must first understand Space: the environment and its causes, the impact of that environment on the Earth, and how we maneuver through its vast expanses. Two complementary courses provide cadets with a foundation of the basic physics and mathematics of orbital mechanics and the Space environment. PH472, Space and Astrophysics is taught by the Department of Physics & Nuclear Engineering, and MA488A, Mathematics for Space Applications is taught by the Department of Mathematical Sciences. These two courses are comparable to each other in their basic treatment of orbital mechanics and maneuvers, and they offer complementary treatments of the environment of Space and its affect on not only the Earth but the universe.

PH472 focuses on understanding the environment between the Sun and the Earth's upper atmosphere and introduces concepts of astrophysics, specifically the study of stellar structure and evolution, galactic structure, and cosmology. A secondary outcome of the course is to make Space topics more relevant to current Army operations by providing an introduction to Space weather, and exposure to Spacecraft design requirements in order to account for the harsh environment.

MA488A focuses on the complementary aspect of accounting for the perturbations of orbits due to the harsh Space environment, and provides cadets with foundations for analyzing this impact to the orbits of satellite constellations.

Building upon the base knowledge of ideal systems, cadets explore perturbations and develop numerical methods for orbital propagation in their presence. The parallel and complementary nature of these courses provides cadets with a foundation of principles for Space related topics.

Applications

The use of Space based capabilities spans each branch of service and impacts every aspect of daily Army operations. The employment of navigation, communications, weather, and intelligence assets based in Space makes possible the precise nature of our operations. Two pairs of sequence courses offered by the Department of Geography & Environmental Engineering expose cadets to a wide range of Space based systems and allows them to see many aspects of their effective use.

EV398, Geographic Information Systems and EV498, Advanced GIS - represent a two semester sequence that allows cadets to utilize Geographic Information Systems consisting of hardware/software systems that permit the input, storage, retrieval, manipulation, analysis, and display of geocoded data. Used by environmentalists, engineers, geospatial analysts, architects, managers of large land holdings, and the military, these highly intricate decision support systems assist managers in answering important "what if" questions. Using digitizers and microcomputers cadets build a geocoded database and solve real-world problems.

In the advanced course, analytical methods are used and provide cadets with a clear understanding of the theoretical/conceptual aspects of algorithms found in GIS software. Cadets explore the underlying mathematical basis for widely used spatial analytical techniques. Among the topics covered



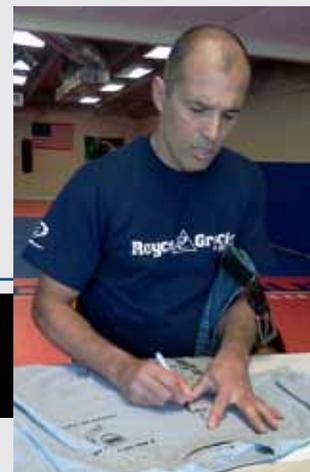
Soldiers from the 1st Space Battalion and 53rd Signal Battalion partner up to practice combat moves taught to them by Royce Gracie at his Army Combatives clinic.

Photo by Rachel L. Griffith

GRACIE CLINIC

Brazilian Jiu-Jitsu Master Trains Space Warriors

By SPC Vivian Rebstock, 1st Space Battalion



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COLORADO SPRINGS, Colo. — The Space Warriors assigned to the 1st Space Battalion and 53rd Signal Battalion participated in a rare chance to train with one of the most renowned figures in mixed martial arts. Royce Gracie taught a Brazilian Jiu-Jitsu clinic at Colorado Springs Brazilian Jiu-Jitsu, and the Space Warriors were invited to attend.

“It was important for me to recognize the efforts of our Combatives trainers with an opportunity to train with a living legend of MMA,” said LTC Joseph Guzman, executive officer, 1st Space Battalion, who coordinated the training for his Soldiers.

Gracie was the first Ultimate Fighting Championship champion and was the first person inducted into the UFC hall of fame. He is a Brazilian professional mixed-martial artist and a BJJ practitioner. He is frequently tapped to train members of Hollywood, including Jim Carrey, Chuck Norris, and Nicolas Cage. He also has worked with the Armed Forces, training Army Rangers and Navy SEALs, among others.

During the two-hour clinic, Gracie taught the Space Warriors BJJ techniques as used in the Modern Army Combatives program. Gracie would demonstrate the moves, and then have the class partner up to practice while he offered guidance.

“It was an amazing experience ... he is an incredibly meticulous instructor. His attention to detail is unparalleled to any other instructor I have ever worked with. Gracie and his training team believe in repetition and perfection when it comes to Jiu Jitsu,” said SSG Andrew B. Brown, 1st Space

Company, who attended the clinic.

The form of BJJ taught during Gracie’s clinic was meant to work along with the MAC program, teaching the Soldiers methods proven effective in hand-to-hand combat.

“I took away experience that will help enhance what I have learned in the Modern Army Combatives,” said SSG David Padilla, Joint Tactical Ground Station initial qualification training instructor.

The MAC program combines throws and takedowns from Greco-Roman wrestling and Japanese Judo, striking skills from boxing and Muay Thai, and ground fighting from BJJ. The MACP teaches Soldiers to neutralize close-quarter threats by using hand-to-hand combat in a close one-on-one situation with the enemy. The goal is not necessarily to kill the enemy, but to subdue him and hold him down until a fellow Soldier arrives to help.

“Combatives is one way to develop mastery. A great Samurai, Miyamoto Musashi, who wrote ‘The Book of Five Rings’ in the 1600s stated that with mastery of one-on-one combat, such as in Jiu Jitsu, one can master any task in life,” said Guzman.

All Soldiers receive training in the basics of Army combatives during their military Basic Training and Advanced Individual Training. Clinics such as the one Gracie taught build on that foundations training, and are a part of their Unit Sustainment Training in combatives.

After the clinic Gracie stayed to take photos with and sign autographs for the Soldiers.

Brazilian Jiu-Jitsu master Royce Gracie signs an autograph for a Solider after his combatives clinic.

Photo by Rachel L.Griffith



Royce Gracie, Brazilian Jiu-Jitsu master, works with SGT Reginald Genus on hand-to-hand combat at his clinic. Gracie travels around the world teaching BJJ clinics.

Photo by Rachel L. Griffith



A NEW JOINT TOOL KIT:

The Space and Missile Defense Functional Area, Joint Coalition Warfighting (JCW) Center, Joint Staff J7

By LTC Larry Roberts, Chief of the Space and Missile Defense Functional Area, JCWC, JS J7

In transition from US Joint Forces Command (USJFCOM) to the Joint Coalition Warfighting Center (JCWC) , Joint Staff J7, the need for understanding the space and missile defense mission areas has never been more vital than today. Training demand signals from Combatant Commanders and Service Components confirm a clear need for focused training and educating exercises for our joint space and missile defense forces, to developing the space and modeling simulations for joint Warfighter exercises and training through the Joint Space Training Federation (JSTF), to providing space and missile defense capabilities, both critical enabler throughout coalition operations.

Space and Missile Defense functional areas are not just another “buzz phrase”. In Operations dominated by Irregular Warfare (IW), COIN, and Counter-terrorism (CT), it is the electronic war that you don’t see that can make the difference between success and failure in operations. This is the new joint toolkit that the space and missile defense functional area will deliver. Competencies in both space and missile defense from the ground, thru near space to space are domains in which we can bring both observer and trainer expertise sharing best practices and insights while supporting event planning throughout the Joint Event Life Cycle(JELC). For the Space and Missile Defense Functional Area for training and exercises, the IOC is planned for 1 August 2011 while FOC is planned for 1 August 2012. More details will be forthcoming in later editions.



LEFT Guest speaker Ruth Steele, founder and CEO of the Martin Luther King, Jr. Museum and Cultural Center in Pueblo, Colo., speaks to the audience about what life was like before Brown vs. the Board of education changed the school system. **RIGHT** LTC Timothy Cassibry, Executive Officer, 1st Space Brigade, delivered opening remarks at the event. Cassibry expanded on this year's National Black History month theme, "African-Americans in the Civil War," noting that more than 200,000 African American Soldiers served in the war. Photos by Craig Denton, 21 Space Wing.

BLACK HISTORY MONTH



USASMDC / ARSTRAT Building 3

Robert Howard, USASMDC/ARSTRAT Equal Employment Opportunity Officer, explains to the crowd how the chairs are set up to reflect "separate but equal".

By Rachel L. Griffith, USASMDC/ARSTRAT

COLORADO SPRINGS, Colo. — February is recognized as Black History Month in the United States, and this year's theme was "African-Americans and the Civil War," honoring people of African descent who worked to destroy slavery and begin their freedom in the United States.

In recognition, the USASMDC/ARSTRAT Special Emphasis Committee held an event to enlighten members of the command. It focused on the historical court case of Brown vs. the board of Education of Topeka, Kan.

"We have you seated together, in two rows of nine seats, with a column down the middle," said Robert Howard, USASMDC/ARSTRAT Equal Employment Opportunity Officer, "Why did we do this? Separate but equal." Howard was referring to the court's declaration that separate educational facilities are inherently unequal.

The theme 'separate but equal' was carried on by the guest speaker, Ruth Steele, founder and CEO of the Martin Luther King, Jr. Museum and Cultural Center in Pueblo, Colo.

"The white schools used to send us their books. We'd open them up, to have no pages! But, they forgot they had an index," said Steele, "Our teachers were so well-prepared, they could write a whole lesson, just based off the index. That was our 'separate but equal'."

Steele's remarks continued to touch on ways the case changed history, noting even though the attendees were seated separately, they were still integrated.

"You guys, you couldn't be sitting there," noted Steele, motioning to African-American members of the audience, "not when I was a kid. No way."

Steele continued to point how the world today is a far different place from the one she grew up in, and reminded the audience to be thankful for events like Rosa Parks refusing to give up her seat, and historical figures like Martin Luther King, Jr., both of whom helped to clear the path of the civil rights movement.

Black History month began as "Negro History Week" in 1926 as an effort by historian Carter G. Woodson to educate the American public about the African-American culture. It was celebrated during the second week of February, to coincide with the birthdays of both Abraham Lincoln and Frederick Douglas. Negro History Week grew to become Black History Month, sometimes known as African-American History Month, in 1976 under President Gerald R. Ford.

LTC John D. Price, 1st Space Battalion commander, pins the Basic Space Badge on SFC Erik A. Johnson, 4th Space Company, 1st Space Battalion, during a monthly awards ceremony at Peterson Air Force Base, Colo.

Photo by DJ Montoya



SPACE BADGE

Recognizes Warriors of the High Ground

By Jason Cutshaw, USASMDC/ARSTRAT

From Combat Infantryman Badges, “Jump Wings” and Ranger Tabs, Soldiers have been able to show the world they are trained professionals. With the addition of the Army’s newest badge, Soldiers can now show they are trained to control the high ground.

On Feb. 2, the Army Chief of Staff 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.

“The Soldier [wearing the Space Badge] is a valued member of the Army Space Cadre community who speaks from a position of knowledge and experience,” said Robert Kyniston, operations officer for the Army Space Professional Development Office at USASMDC/ARSTRAT. “Soldiers wearing the Space Badge are also recognized as knowledgeable, contributing members of the joint Space community by other services.”

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.

The Space Badge is considered a Group 4 badge, and Soldiers can wear it with Group 3 badges such as the Aviator Badge.

“To me the Space Badge is used to indicate simply a level of training and experience and hence a way of measuring ourselves as Army Space Cadre with our Air Force counterparts,” said LTC Brian T. Soldon, U.S. Army Kwajalein Atoll and Reagan Test Site deputy commander, who received the Master Space Badge in 2009.

“As my career progressed and with the recent approval of the Space Badge as an Army award as well, the Space Badge has taken on additional meaning for me as an indication of professionalism and camaraderie,” Soldon added. “Every day I get up and put my uniform on, I am reminded [by the badge] that I owe it to those I serve with to challenge myself to be [added value] to the goals and objectives of the Warfighter on that, and every, given day.”

Formerly called the Air Force Space Badge, the term “Air Force” was dropped from the name, and it is now called the Space Badge. A paragraph pertaining to the badge will appear in

the next update to Army Regulation 600-8-22, Military Awards.

The badge is one element of the military’s identification and development of people with Space expertise. In 2001, the Secretary of Defense directed each service to develop a “cadre of Space-qualified professionals comprised of military and civilian personnel in sufficient quantities to represent their military service and agency’s interests in Space requirements, acquisition, and operations.”

As the Army-specified proponent for Space, the commander of USASMDC/ARSTRAT was assigned to develop and track a cadre of Space-qualified professionals comprised of military and civilian personnel. The Army Space Cadre consists of more than 2,300 Soldier and Civilian billets spread throughout Army and joint organizations. There are three categories of Army Space personnel from all components: FA40 (Space Operations Officers), Non-FA40 Soldiers, and Department of the Army civilians.

To help facilitate the identification and tracking of Space Cadre Soldiers, the Department of the Army G-1 has approved the revision and expansion of the 3Y skill identifier. The 3Y identifier is called “Space Enabler” and applies to officers (except FA40s), warrant officers, and enlisted Soldiers.

“3Y tells the Army that you are a trained and ready Soldier who is an expert in Space,” said SFC Gabriel A. Cardenas, Noncommissioned officer in charge at the USASMDC/ARSTRAT Future Warfare Center Directorate of Training and Doctrine. “The Army has Space Soldiers, regardless of their rank and military occupational specialty, who are able to articulate what needs to be done in current and future operations and plans.”

Cardenas talked about how it feels to be a member of a select group of Soldiers who work on Space-based issues for the Army.

“In one word, it is dynamic,” he said. “But trying to summarize what my Space brigade Soldiers do in a feeling is impossible. I can tell you that I am inspired each day with what our Soldiers are providing to the Warfighter, from commercial imagery to Space situational awareness. These products are allowing commanders to make decisions that will save lives, protect borders, and destroy the enemy.”



SGT Aaron Hengst lights a candle symbolizing the Non-Commissioned Officer igniting the eternal flame of dedication and determination during the NCO induction ceremony hosted by the 1st Space Battalion on Peterson Air Force Base on Mar. 7.

Photo by DJ Montoya

SOLDIERS BRING LIGHT TO CORPS

6F

1st Space Brigade Welcomes New NCOs into the Fold



Headquarters and Headquarters Company Marcus Calhoun uses "rocket fuel" to wash the newly-earned sergeant stripes of 1SG William Bassat. The 22 new non-commissioned officers (NCOs) had their rank washed with several symbolic substances, including the blood of fallen comrades and sweat from Kevlar, during the NCO induction ceremony hosted by the 1st Space Battalion. *Photo by Rachel L. Griffith*

By DJ Montoya,
1st Space Brigade Public Affairs

PETERSON AIR FORCE BASE, Colo. – A specially crafted candelabra with 22 flames signified the number of newly promoted sergeants from the 1st Space Brigade, U.S. Army's Space and Missile Defense Command/Army Forces Strategic Command, during an induction ceremony into the ranks of the time-honored Non-commissioned Officers Corps performed at the Base Auditorium on Peterson Air Force Base, March 7.

According to narrator SSG Maricris Remigio from the 1st Space Battalion, "The lighting of a candle by each Soldier symbolizes the NCO igniting the eternal flame of dedication and determination serving our Soldiers and this great country with pride, honor, courage, and commitment."

The ceremony began with a brief history of the NCO Corps and followed with Soldiers from the 1st Space Brigade showcasing the various NCO ranks beginning with sergeant, then proceeding to staff sergeant, platoon sergeant,

and ending with first sergeant. Three brigade NCOs read the Noncommissioned Officers Creed.

Afterwards, 1st Space Battalion CSM William C. Baker, host for the day's ceremony, introduced guest speaker Air Force Chief Master Sgt. Thomas S. Narofsky, U.S. Strategic Command, Offutt Air Force Base, Neb. Narofsky broke protocol and left the stage to impart some words of wisdom to the new inductees in the audience.

"The question is, 'How are you going to be a successful NCO?'"

"One, there is strength in the stripes you wear. Know yourself so that when you go through this time of growth you can bring that to bear for the 1st Space Brigade, the United States Army, and the joint world.

"Secondly – know your people. You have to know your folks because that is going to impact the mission. If you don't know what is happening with your folks you are failing as a leader.

"The last one is know your mission. Know everything about what we are asking you to be a part of, because I'm going to ask you to grow up to become Command Sergeant Major Turner and Command Sergeant Major Ross. You have got to know those three."

He concluded by saying, "Thank you for your service to our country. Thank you for serving in a time of war. Thank you for being the leaders you are. I look forward to your leadership. I look forward to serving with you day to day. And I would be honored to serve with you in the defense of our Nation anytime."

Those inducted into the NCO Corps during the ceremony were: SGT Herman Ada, SGT Dustin Bungart, SGT Damion Carrcarter, SGT Matthew Cater, SGT Marshall Farris, SGT John Ford, SGT Aaron Hengst, Sgt. John Lopez, SGT Stefan Lucas, SGT Robert Miller, SGT Adam Orsborn, SGT Steven Pearson, SGT Anthony Sanchez, SGT Robert Sanders, SGT Brian Stracek, SGT Kimberly Urban and SGT Nelson Villanueva, all from the 4th Space Company, 1st Space Battalion; CPL Gerald Genus, Headquarters and Headquarters Company, 1st Space Battalion; SGT Sean Beverly and SGT Marc Frazer from the 53rd Space Battalion; and SGT Victor Dance, 1st Space Brigade.

Each inductee received the Creed of the NCO and the NCO Guide from USASMDC/ARSTRAT CSM Larry S. Turner, 1st Space Brigade CSM James Ross, and Baker.

After the inductees lit their candles on the specially crafted candelabra, the three command sergeant majors in turn lit theirs symbolizing the experience and continuous commitment to the NCO Corps and the country.

The Charge of the NCO was then given to the inductees by Baker, host for the ceremony. Afterward, brigade members came forth to perform "The First Sergeants' Request" involving the new inductees. This "wetting of the stripes" included the symbolic "spirit" of a sniper's round, the essence of rocket fuel, lubricant from an obsolete Army electronic warfare program known as "Big Crow," the sweat from Kevlar, and blood.

The ceremony ended with PFC Gabriela Fernandez reciting "A Soldier's Request."



CSM William C. Baker, 1st Space Battalion, administers the charge of the noncommissioned officer to the 22 new NCOs inducted into the NCO Corps.
Photo by Dennis Hawk, USAF



“It is my job to be the focal point for all matters related to communications payload control and the DSCS III satellite constellation,” said Ordonez.

SPC Felipe A. Ordonez checks the operations manual as SPC Justin C. Waldron prepares to sign on to his control station. Both Ordonez and Waldron have important missions at Delta Company's new operations home on the Island of Oahu, Hawaii.

Naval Computer and Telecommunications Area Master Station, Wahiawa Annex, company commander CPT Daniel Zisa can almost see the ocean from the North Shore of the island.

Zisa, who only has until the end of summer before moving on to his next assignment, looked back on all the work put into standing up the \$25.4 million, 28,244-square-foot, state-of-the-art facility.

“No unit in SMDC/ARSTRAT has ever relocated and maintained critical satellite communication operations at the same time utilizing one company's worth of manning,” he said.

Construction for Delta's new home began in March 2009 and was completed May 31, 2010. Keys to the building were turned over June 25, 2010. Operations at Camp Robert ceased in late January of this year, and a ribbon-cutting ceremony at NCTAMS, Wahiawa Annex, brought it altogether Feb. 23.

Operations noncommissioned officer in charge SSG John Wischmeier recalled the beginning of the move to Wahiawa.

“I was the third Soldier to arrive in Hawaii, and I saw the installation of the equipment from the start. It was truly an amazing event watching the WSOC take shape. I was responsible for making sure the Soldiers were properly trained and proficient on the newly installed equipment. It is great to see the tremendous amount of effort and enthusiasm from our Soldiers and Civilians as they make this herculean effort happen.”

At the heart of Delta's operation are the Soldiers, especially those on the high-tech Operations Floor who control the satellites so greatly needed for day-to-day missions.

Take SPC Justin C. Waldron, WGS payload controller, who monitors the Spacecraft's link to the ground station.

“This link allows us to configure the onboard communications resources in order

to ensure continuity of communications services to fellow Warfighters located throughout the world,” Waldron said.

He went on to state that the WGS payload controller liaises directly with the Air Force to monitor and maintain the health of the Spacecraft. “I absolutely love my job because of the unique technical aspect and sense of knowing that our work makes a huge impact to global operations.”

SPC Felipe A. Ordonez serves as the DSCS payload controller.

“It is my job to be the focal point for all matters related to communications payload control and the DSCS III satellite constellation,” said Ordonez. “As a DSCS payload controller, I am responsible for monitoring and reporting the health and status of the Space asset. Furthermore, I have the ability to command and configure the communications subsystem on the spacecraft to provide communication services to our fellow Warfighters geographically dispersed.”

From behind his six-screen station SGT Joshua Quenga works both the mobile transmission controller and enterprise transmission controller positions.

“The primary responsibility of the MTC in the Pacific theater of operations is to maintain, command, and control satellite communications transmission over both the DSCS and WGS satellites as well as provide steadfast communications for all mobile ground terminals, naval ships, submarines, aircraft, and other diplomatic assets in the Pacific,” Quenga said. “At the ETC position, I watch and maintain strategic links for fellow Warfighters on both DSCS and WGS systems in theater. The links maintain the crucial communications required of many global operations.”

If this is a little confusing Zisa had the perfect explanation for someone who didn't know a lot about WGS or satellite control.



An outside view of Delta's new \$25.4 million home complete with company guidon.

“The best way to explain satellite payload control is to use the example of a public bus,” he said. “Much like a bus driver physically drives the bus, the Air Force flies the satellite. Our role is controlling the information that travels through the satellite, or in the ‘bus analogy,’ who gets on and off. Additionally, we monitor the health and welfare of the satellite to ensure its systems are in prime operational condition and that other organizations are not overpowering the satellite, which not only disrupts communications but could destroy its operational capability.”

In addition to a new mission with WGS comes a bi-national partnership with Australian Defense Forces personnel who will be integrating with Delta Company personnel.

According to Zisa, five Australians currently are imbedded into Delta operations.

“We are looking to have a full contingent of 12 Australians working within the WSOC in the future years to come. Currently we have two Soldiers from the Royal Australian Army, two Airmen from the Royal Australian Air Force, and one petty officer from the Royal Australian Navy. We work as one integrated unit and within the same building.”

Zisa reflected on Delta being the first fully operational WSOC.

“This is by far the most unique assignment in the United States Army. It is truly a rewarding experience to move a unit and operations overseas, bring new systems online, and incorporate the Australian Defense Forces into our operations. Not an easy task, but truly a rewarding experience.”



LTG Richard P. Formica stops to congratulate SPC Matthew R. McLeod, a satellite payload controller with Delta Company. McLeod holds the title of 2010 USASMDC/ARSTRAT Soldier of the Year.



Delta Company Soldiers do routine systems check in the equipment room of the new 28,244-square-foot, state-of-the-art facility at the Wahiawa Annex.

FROM WINE TO PINEAPPLES

Delta Company Takes on New Satellite Role



LTG Richard Formica, Commanding General, U.S. Army Space and Missile Defense Command/ Army Forces Strategic Command, addresses a crowd of over 100 during the WSOC / Delta Company dedication ceremony on the morning of Feb. 23, at Joint Base Pearl Harbor-Hickam, Wahiawa Annex.

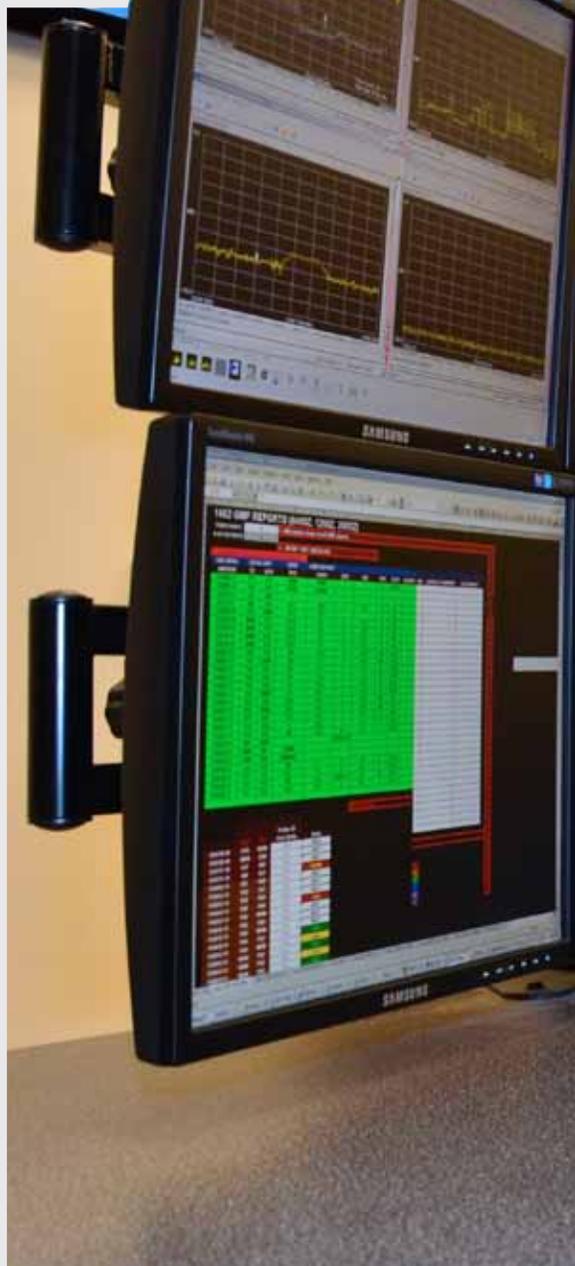
Story and Photos by DJ Montoya,
1st Space Brigade Public Affairs

WAHIAWA, Hawaii – 2011 has yet to be determined as a vintage year for California wine, but for the Soldiers of Delta Company, 53rd Signal Battalion, it will go down as a banner year. Members of Delta have departed their humble, but outdated, satellite control facility after more than 20 years of being located in one of California's most acclaimed wine regions just north of the town of Paso Robles. In its place they have settled for a more tropical setting next to pineapple fields on the island of Oahu, Hawaii.

Delta Company has provided network and payload control for the Defense Satellite Communication System at Camp Roberts, Calif., since the late 1980s. The company, which consists of nearly 55 Soldiers and 10 Civilians, to include government and contractor employees, in recent years has taken on a new mission: managing the new Wideband Global Satellites.

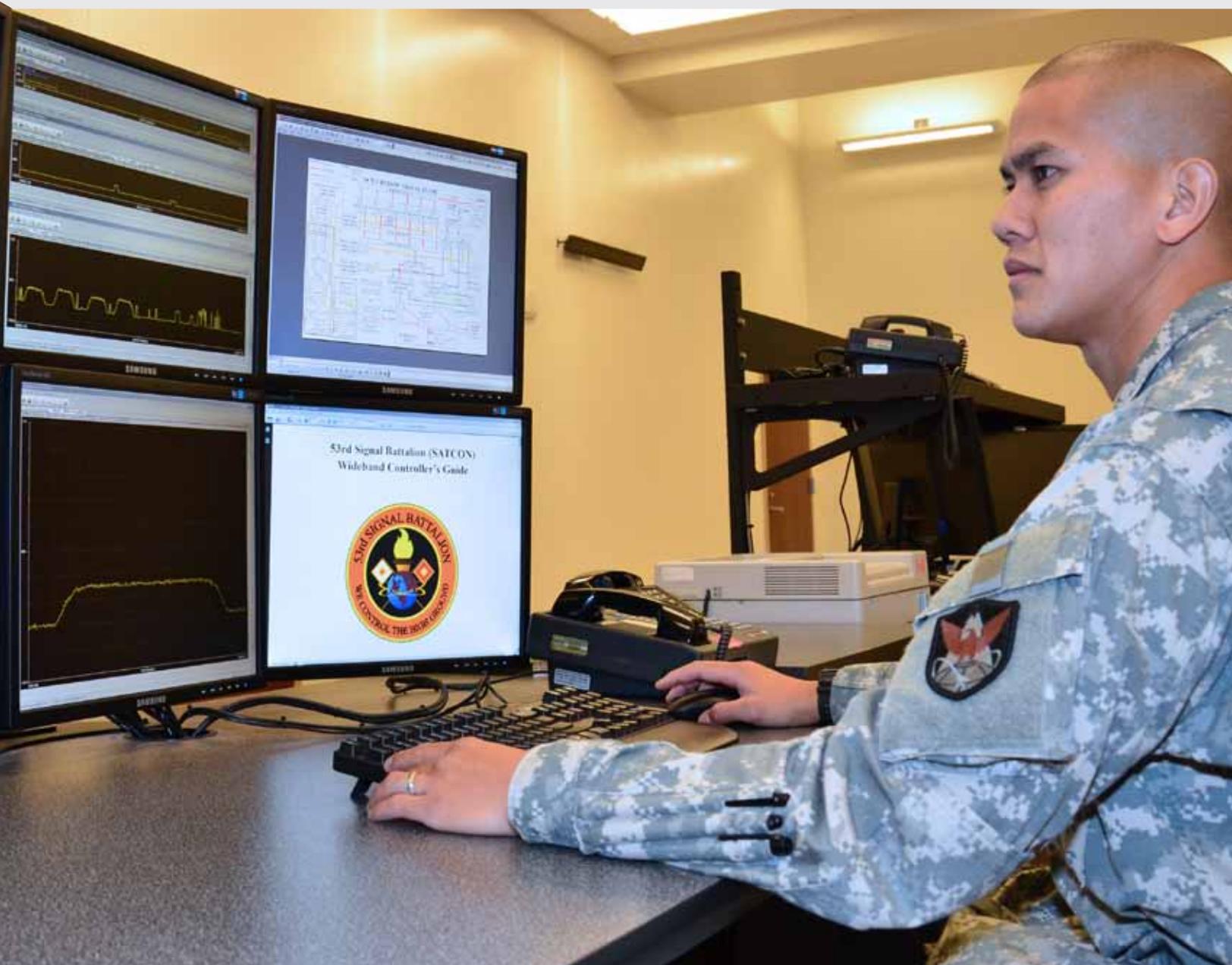
The reason behind the relocation to Hawaii lies with the particular wideband global satellite that services the Pacific Rim and puts Delta Company directly underneath its orbital footprint. Wahiawa's geographical location makes it the only Wideband Satellite Communications Operations Center capable of accessing the test slot for new WGS units. This means Delta Company will do the payload control validation on all future WGS launches and testing of satellite control hardware and software.

From his office at the Army's first official WSOC and Delta's new home on the U.S. Navy





U.S. Army personnel from the USASMDC/ARSTRAT 1st Space Brigade, and the 53rd Signal Battalion along with Flight Sergeant Matthew Clarke (center) representing the Australian Defense Forces, untie a traditional Maile Lei formally dedicating the WSOC and new home of Delta Company



Sgt. Joshua Quenga, a native of Hawaii, performs his duty as the mobile transmission and enterprise transmission controller at his six-screen station within the operations center of Delta Company's new home at the Wahiawa Annex.



1st Space Brigade

Leader Notes

Army Space Support Overseas



COL Eric P. Henderson
Commander,
1st Space Brigade

Noted American singer and songwriter Bob Dylan once penned the lyric, "...the times, they are a-changin'..." As I sit down to write this first Commander's Corner for the Army Space Journal, I think of the changes that have occurred within the 1st Space Brigade over my first ten months of command, as well as the steady-state nature of our jobs here.

The first thing I'd like to comment on is the nature of the business in which we are entrusted to do. I reflect upon LTG Formica's vision statement for SMDC/ARSTRAT and I am cognizant of his direction to the command – specifically "providing trained and ready Space capabilities to the combatant commanders and the Warfighters." With the recent return of members of the fourth Space Company, 1st Space Battalion, this brigade has completed 61 successful rotations of trained and ready Space operators to the U.S. Central Command area of operations. I am very pleased to say, that since hostilities commenced, we have deployed, returned, and integrated back into our units, our families, and our communities. As our Army Space support teams and the commercial imagery teams rotate in and out of theater, there is a constant, steady level of professionalism that

allows us to seamlessly provide Space-based products and services to those deployed in harm's way.

As our adversaries change and adapt we continue to keep pace with the ever-changing demands placed upon us. I liken this situation to an analogy of "building an airplane, while we are flying it." Great demand is being placed upon 1st Space Brigade Soldiers to do an impressive array of innovative problem-solving missions. "Innovative problem-solving missions" gives every impression of a sound bite. More succinctly, our trained and ready Space forces, as directed by our commanding general, help capture and kill those individuals and organizations that wish to do us harm.

The "steady-state" aspect of the brigade is evidenced by the day in and day out steadfast performance of those Soldiers arrayed across the globe in our forward locations. Not a day goes by that Space warriors are not providing missile warning or facilitating payload control on satellite communications for high-priority users. These important missions are stalwart reminders

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Farewell Note to USASMDC/ARSTRAT



CSM James N. Ross
Command Sergeant Major
1st Space Brigade

After 52 months in the command, I relinquish responsibilities as the Command Sergeant Major of the 1st Space Brigade on June 28. Although my departure is because of my selection for a position of higher responsibility, serving the 16,000 Soldiers of the 32nd Army Air and Missile Defense Command, it is bittersweet. I will conclude more than four years in USASMDC/ARSTRAT, which is a pretty incredible amount of time for a Command Sergeant Major to serve in one location.

During my tenure, I served as the Command Sergeant Major for both the 1st Space Battalion and the 1st Space Brigade. As I reflect on my time here, I have been a part of one of the finest

organizations in the U.S. Army. It has been a distinct honor to serve with the Soldiers and Civilians of this great command. It also has been a pleasure to work with the families of the command who have amazed me with their support to their warriors.

I want to thank each of you for what you do every day. You are dedicated to providing trained and capable Space and Missile Defense forces and capabilities across the globe to all supported geographic combatant commands. This command is unique, and during these past four years the growth in Space, Special Missions, and support

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100th Missile Defense Brigade

Leader Notes

One Team, One Fight!



CSM Russel A. Hamilton
Command Sergeant Major
100th Missile Defense
Brigade (GMD)

It is a cliché saying that can be heard on any installation where you find a formation of US Army Soldiers. However, in the arena of Space and missile defense, it is a saying that rings true every day. With the inaugural edition of the Army Space Journal-For Space and Missile Defense Operations, we now have the official acknowledgement that it truly is one team effort in accomplishing the mission. However, unofficially, this is something that has been true from the very beginning of the missile defense program. The mission of the 100th Missile Defense Brigade (GMD) is to conduct missile defense operations, 24/7/365, in order to defend the U.S. homeland from an inter-continental ballistic missile strike. While we are an Army organization, the missile defense fight is the epitome of multi-component, joint forces, and perhaps in the future, multi-national operations. Those

who are familiar with the Ground-based Midcourse Defense system understand that the system relies heavily on Space assets (from multiple DOD elements) for detection and tracking of threats. Protecting those Space assets from our adversaries, and avoiding the effects of a nuclear type event in Space are of vital importance to the conduct of missile defense operations.

In essence, Space operations are an enabler for the effective conduct of missile defense operations. Because of this importance, the 100th Missile Defense Brigade (GMD) has undertaken significant steps to train our Soldiers on Space operations and Space capabilities. Most of our Soldiers who man the GMD Fire Control System have been through the Space Fundamentals course as part of their professional development. Several have also attended, or are scheduled to attend the Space 200 course. A select few have even attended the FA-40 course. Doing so better enables our operators to understand the

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The Other Half of USASMDC/ARSTRAT



COL Gregory S. Bowen
Commander,
100th Missile Defense
Brigade (GMD)

Last year, I wrote an article for the Army Space Journal titled “Space — A Missile Defense Enabler.” In that article, I argued that Missile Defense was not a “Space enabler,” rather, Space is a Missile Defense enabler. I outlined all of the areas where Space assets support the Missile Defense mission and pointed out that without Space, the Ballistic Missile Defense System does not work. I also offered my opinion that the command had become too Space-centric and had drifted away from one of its core competencies. Further, I advocated for “cross-fertilization” between Missile Defense and Space professionals as well as more Space training for Missile Defense crewmembers. While I cannot take credit for the change, I am grateful that the new focus of our professional journal now gives

Missile Defense equal billing with our Space brethren. We are, in my view, two sides of the same coin.

In the past year, we have made some significant progress toward the goals I laid out last year. Missile Defense crewmembers and staff are now routinely attending the Space Fundamentals and Space 200 courses. The Army Space Personnel Development Office is actively exploring the possibility of assigning Functional Area 40 Space Operations Officers into some of the active component positions within the 100th Missile Defense Brigade. The Army National Guard has agreed to establish a Space and Missile Defense Branch within the headquarters G-3 to help manage cross-state manning, equipping, and resourcing issues for ARNG Space and Missile Defense units. Placing both disciplines under a single branch recognizes the synergies between Space and Missile Defense, as well as the impor-

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USASMDC/ARSTRAT

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