



# Army Space Journal

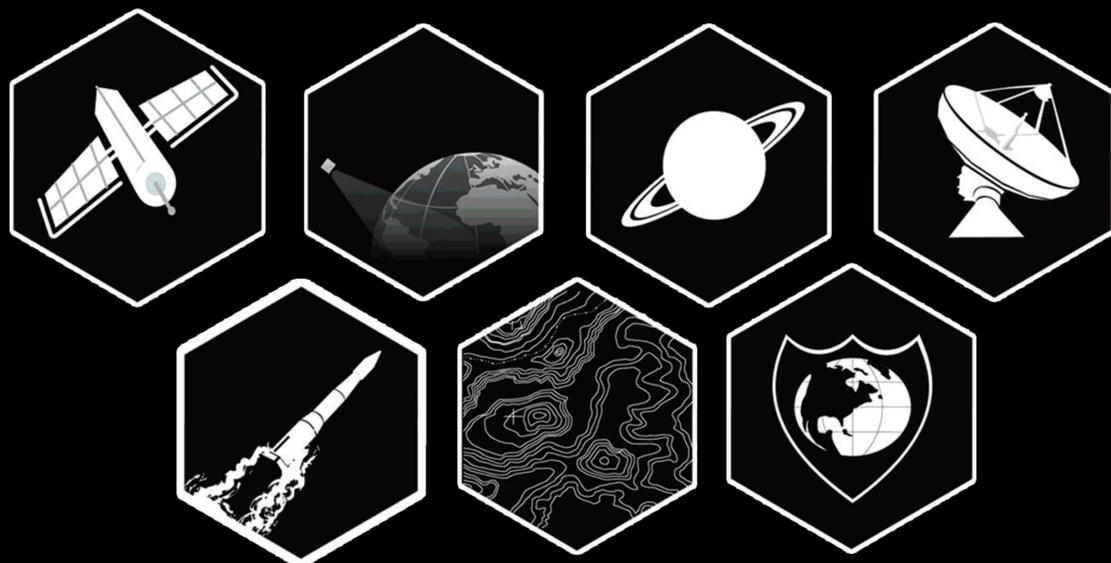
A Professional Journal on U.S. Army Space Operations



2010 Winter/Spring Edition Vol. 9, No. 1 Published by U.S. Army Space and Missile Defense Command / Army Forces Strategic Command

# SPACE METTL

## GAINING THE UPPER HAND



SATELLITE COMMUNICATIONS  
FRIENDLY FORCE TRACKING  
SPACE SUPPORT  
MISSILE DEFENSE  
HOMELAND DEFENSE  
COMMERCIAL IMAGERY







## The Spinning in Orbital Mechanics

Lifelong learning is a critical human component of the military's ability to shape itself to the ever-changing national security issues it faces. The global security environment has grown in complexity since Sept. 11 or even the end of the Cold War, making this human factor even more important as the threats increase in diversity. More direct and relevant for the military space community serving the broader joint fight, people delivering space-based capabilities need to have a flexible attitude toward acquiring new skills and abilities as technology rapidly develops. And, even more precise, the business of the growing U.S. Army Space Cadre community really dictates that the people in it be flexible and adaptable to new things and ways. This brings the discussion to human dynamics, ideas that can be nearly as difficult to understand as the principles in mind-numbing orbital mechanics.

Today a friend told me something related to this that puzzles me that way. He - like me - is in his fifties and is working in his second career after retiring from the military. He - like me - made it to the top rank of his chosen profession as an enlisted service member on active duty. He - like me - feels the gravity of a body that increasingly desires to do less while his mind wants his body to continue performing as it did when young. He - but unlike me - feels that his current job is simply a means to pay

the bills until his real retirement begins. My friend believes he has already achieved his goals and there is no place else for him to go in his professional life. I don't see it that way at all - there are plenty of places to grow in and expand.

Maybe it's my baby-boomer upbringing and optimistic mindset, but this professional-life-has-ended approach seems like an uninspired dead-end downer. For me, thinking the way of my friend would be familiar with giving up - as if I were living in a box with the lids closed and no opportunity for personal or professional growth, mental advancement and meaningful future contribution for the rest of my life. Here's your 1970s solid C high school student - not one A, B, D or F on the report card - not destined for an Ivy League school or a military service academy. In fact, I dropped out of a private college after 18 months of struggle and just before I would have flunked out with my well-polished resume of Ds and Fs. I guess I was prime enlisted material for a rebuilding Army coming out of the aftermath of war in Vietnam.

Volunteer service in the U.S. military in 1979 provided me a new mindset with wide-open educational and developmental opportunities. Thirty-one years later, lifelong learning is a concept deeply ingrained in my approach. I finished my military career with a master's degree in human resource management and a Soldier gig as a student at the U.S. Army Sergeants Major Academy. Four years ago as a Department of the Army civilian, I started the Defense Leadership and Management Program (DLAMP) which included attendance at the U.S. Army War College. This summer I graduate from the distance education program at the Army War College with a second master's degree in strategic studies along with completing DLAMP requirements. I mention this not to draw attention to these accomplishments, but to make the point that education shouldn't stop for the uniformed military and business-suited civilian workforce.

We should all strive to grow - it should never be enough to allow us to stop the push. The upcoming Army Space Journal summer edition features one product from the latest leg of my professional development journey. My capstone research paper for the Army War College - *Rendezvous in Space: Looking in on Military Space Power* - demonstrates that the United States cannot fully benefit from the strategic value of military space assets in orbit unless it adopts a new perspective on space power. The article reaches this conclusion by comparing the challenges that currently exist with national space power today against those seen during the developing years of national air power. The points illustrate how mindsets impacted both air power development prior to WWII and space power development since the 1950s. This perspective comes from not only digging in to better understand the strategic environment the United States military operates within, but through seeking a better understanding of the military space power point of view.



I am not a space operator, but I am a guy trying to help tell the space story since just before Sept. 11, when I transitioned from uniform to business suit and became a member of what was then U.S. Army Space Command. There were several triggers for this article. One came from within the Space Cadre community where the argument seems too focused on the high value of space effects without any concrete descriptions of the strategic value-added in terms that Warriors outside the space community can understand. On the flipside of that, another trigger came from the Warrior community where there seems to be a lack of true understanding or realization of just how critical space-based information is to the overall military enterprise. From a communications viewpoint, there is a tremendous need to bridge the communities.

I think this means that those of us on the space side need to speak as the locals do. For me, that meant gaining a broader understanding on two fronts. Not only did I need to get a better grasp of the strategic environment, but I needed grounding in space fundamentals. I will say that the two-year Army War College experience opened my eyes - the eyes of a 22-plus year Army veteran - wider than they have ever been in seeing the global strategic context. On the other side, my nearly 10 years working around space operations only gave me a limited understanding of the military space equation. For that, my good friends at the U.S. Army Space Personnel Development Office linked me with National Security Space Institute's Space 200 course in Colorado Springs, Colo. Getting this course under my belt was definitely the best move I have made to get a basic understanding of the space business - one that I recommend everyone in the space cadre make.

Since I only want to pique an interest in my article in the next edition, I will leave it at that for now. This brings us back to why lifelong learning is an important human dimension to have in the military's workforce. While I was attending the four-week course, a U.S. Army officer asked me why a public affairs officer needed to attend the course since I don't actually perform a space mission in my job. His question puzzled me then much as my friend's observation that he had reached the pinnacle of his career did today. My thinking is that we should encourage every member of the space community — military or civilian, operator or supporter — to gain solid understanding of how the space enterprise works. To do otherwise is like the same closed box that dead ends a career.

David Deist prepares Space 200 students for the capstone Space Integration War Exercise at the National Security Space Institute in Colorado Springs, Colo.

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## Facebook Notes

### Mike Howard on Facebook

All Posts Posts by ASJ Posts by Others Wall-to-Wall

May 15



**Mike Howard wrote** at 8:14 p.m. via mobile web

My desk is piled with junk to do. Monday I will final edit the winter /spring edition of the Army Space Journal. Hope to have it online in a week and a printed version out in three.

May 14



**Mike Howard wrote** at 10:56 a.m.

Hey! The Army Space Journal won some awards! Michael Kahl, our design editor, won first place in the Army-wide competition for graphic arts. We also got a third in PJ, but the big news is Michael. If you get a chance, check out the pub.

March 6



**Mike Howard wrote** at 10:56 a.m.

And another thing to complete my monthly burst on facebook ... yesterday I finished a four-week Space 200 over at the Air Force's Air University. I learned some good stuff for my job



## LTG Kevin T. Campbell

Commanding General,  
U.S. Army Space and Missile Defense Command/  
Army Forces Strategic Command



**I**nside this edition of the Army Space Journal is a good collection of articles submitted by individuals and organizations in the interest of furthering our capabilities and knowledge as space professionals.

These articles are an important step in understanding the essential tasks associated with being a space Warrior. However, they are only a start point. The Army is a learning organization which values leaders, Soldiers, and Civilians who are dedicated life-long learners and self-aware.

It is important to understand individual and collective tasks. It is equally important to understand the concepts that drive not only the space tasks, but every other task a Soldier is required to know.

To understand the genesis behind the tasks, there are three documents you should read to fully grasp the Joint and Army operational framework and the resulting training strategy. These are: *Capstone Concept for Joint Operations*, January 2009 (CCJO), *The Army Capstone Concept*, December 2009 (ACC), and the Army's *Leader Development Strategy for a 21<sup>st</sup> Century Army*, November 2009 (LDS). Reading these documents will help put the articles inside *Army Space Journal* into their proper operational context.

For instance, in this issue is an article submitted by the SMDC/ARSTRAT Future Warfare Center, Directorate of Combat Development (Collective Training Branch), explaining

# Time to Know Your METL

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**“Our Army must have Soldiers and Civilians who are life-long learners and self-aware in order to be successful in the current and future complex operational environments.”**

the changes to the dual METL problem the Army was experiencing. DCD illustrates how Army units changed from having two METLs – a Core METL and Directed METL – to a single Full Spectrum Operations METL. Understandably, having two METLs was confusing to most units.

The operational environment requires Soldiers and their leaders to be capable of full spectrum operations. The *LDS* lists three paradigm shifts in the operational environment:

- the effect of complexity and time
- the effect of decentralization
- the need to frame ill-structured problems

Simply put, our Army must be able to operate in an era of persistent conflict that changes over time, that is fought at the lowest echelons, and that increases in complexity. One result of these paradigm shifts is the introduction of *Design* into the Military Decision Making Process (MDMP). “*Design* provides the cognitive tools for commanders to understand and frame the ill-structured problems they will encounter in the complex environment,” as mentioned in the *LDS*.

FM 5-0, *The Operations Process*, is currently in draft form, but should be published later this year. Among other changes, it will address *Design* as part of the MDMP. *Design* will complement the MDMP by assisting commanders and their staffs with collaboration, dialogue, as well as critical and creative thinking.

The Chief of Staff of the Army, Gen. George W. Casey, Jr., wrote in his seminal thought piece, *The Army of the 21<sup>st</sup> Century*, “Soldiers must possess the mental agility to react quickly and appropriately to changing situations and complex environments.”

Mental agility requires understanding concepts as well as tasks. What we have learned after more than eight years of combat is that most operational environments are complex, ambiguous and usually are not restricted to a series of inputs to task lists. The importance behind understanding the concepts behind the tasks is to ensure our space Warriors are not limited by lists.

As the *CCJO* states, “the future operating environment will be characterized by uncertainty, complexity, rapid change, and persistent conflict.” The future and arguably *current* operating environments require our leaders, Soldiers, and Civilians to possess capabilities that allow them to be effective in complex and ambiguous environments.

Bottom line: our Army must have Soldiers and Civilians who are life-long learners and self-aware in order to be successful in the current and future complex operational environments. Reading professional journals, staying up-to-date on concepts and doctrine, and contributing to the discussion makes us all valued, productive members of the team. We need to continue to examine our roles and functions closely in order to remain relevant.

I appreciate the input from the authors and organizations that submitted articles and information. I encourage others to submit articles for publication. This magazine is an excellent forum for space professionals to exchange ideas and to promote the Army space career field. Kudos to the editors who work tirelessly behind the scenes designing a superb magazine. I highly encourage Army space professionals to use this magazine: read it, contribute, and stay connected.

“SECURE THE HIGH G



## CSM Ralph Borja

Command Sergeant Major  
U.S. Army Space and Missile Defense/  
Army Forces Strategic Command



# Calling all Space NCOs ...

**I**n his column, LTG Campbell talks about three documents; Capstone Concept for Joint Operations, January 2009, The Army Capstone Concept, December 2009, and the Army's Leader Development Strategy for a 21<sup>st</sup> Century Army, November 2009. One of these, the Leader Development Strategy for a 21<sup>st</sup> Century Army "builds on our Army's experiences since the end of the Cold War including the past eight years of war in Iraq and Afghanistan, and on our assessment that the future operational environment will be even more uncertain, complex, and competitive as hybrid threats challenge us across the full spectrum of operations."

My article in this edition of Army Space Journal focuses upon the Leader Development Strategy for a 21<sup>st</sup> Century Army Draft Annex C: The Noncommissioned Officer. This annex makes some excellent observations about today's Noncommissioned Officer and what it takes to continue our development as leaders. As Annex C points out, "NCO

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**“We, the Noncommissioned Officers, have a wealth of knowledge and expertise that we are obligated to share with our fellow Soldiers and Noncommissioned Officers.”**

development is a life-long/career-long endeavor focused on the development of broadly competent NCO leaders.” Meeting the objective of “lifelong/career-long” development requires us to recommit ourselves to growing and evolving as the world around us changes. In today’s Army, we need:

- Noncommissioned Officers who are self-directed learners who are self-aware
- Noncommissioned Officers who know how to think and how to learn and leverage knowledge management processes and systems to find what they need when they need it
- Noncommissioned Officers who learn, adapt, and innovate to keep pace with changes
- Noncommissioned Officers who learn how to operate new systems through information gathering (Web Searches or calling manufacturers’ help desks to find answers about equipment), self-study and experimentation, informed by understanding of the underlying technological principles

Having grown up with rapidly changing technologies, many of our Soldiers are entering the Army with these traits/abilities. As leaders, it’s our responsibility to nurture and grow their capabilities – to assure their growth into tomorrow’s Noncommissioned Officers.

Now I know you’re probably thinking, “That’s all well and good, but what does growing have to do with space?” We currently have Noncommissioned Officers serving in support of virtually every Army space initiative, ranging from staff positions to boots on the ground. USASMDC/ARSTRAT Noncommissioned Officers operate Joint Tactical Ground Station and Ground Based Interceptor crew positions. Our

Noncommissioned Officers are responsible for maintaining the communications payloads on both the Defense Satellite Communications System and the Wideband Global SATCOM. We have Noncommissioned Officers operating Commercial Exploitation Teams as well as Army Space Support Teams.

With all of this space and missile defense expertise, you would expect to find contributions to every issue of Army Space Journal discussing ongoing activities and tricks of the trade that our Noncommissioned Officers have acquired through experience and training. At the very least, you’d expect to read about what we are doing or can do to better prepare our Noncommissioned Officers to provide continued support to the Warfighter.

This being said, we, the Noncommissioned Officer community have not submitted a single article for publication in more than two years. I went back and checked, and the only submissions attributed to Noncommissioned Officers over the past two years, were found on the Flipside and were culled from feature articles from around the command that were submitted for The Eagle/Web site. Frankly, this is unacceptable.

We, the Noncommissioned Officers, have a wealth of knowledge and expertise that we are obligated to share with our fellow Soldiers and Noncommissioned Officers. Their “lifelong/career-long” development, as well as our own, depends upon the sharing of our hard earned knowledge and expertise. This being said, I strongly encourage each of you to consider what you can do help educate and grow our enlisted force. I also urge you to take the time to write articles for this and other professional publications. Just remember to take all articles through the public release process prior to submission.

“SECURE THE HIGH G



## BG Kurt S. Story

Deputy Commanding General for Operations  
U.S. Army Space and Missile Defense Command/  
Army Forces Strategic Command



# Protecting SPACE in a Contested and Congested Domain

Our Nation is in a period of “persistent conflict” where we are confronted by state, non-state, and individual players who are not constrained from using violence to achieve their goals. The Army has a role in dealing with this persistent conflict: “to prevail in protracted counterinsurgency campaigns; engage to help other countries build capacity and assure friends and allies; support civil authorities at home and abroad; and deter and defeat hybrid threats and hostile state actors.”<sup>1</sup> Today’s military is increasingly reliant on space-based assets to provide critical enablers for mission success, i.e., satellite communications, positioning, navigation and timing, and intelligence, surveillance, and reconnaissance, just to name a few. If our space systems are ambushed, how do we quickly understand what happened and react? How will the Army prevail in a denied, degraded, disrupted space operational environment (D3SOE)?<sup>2</sup> Determining the answers to those questions is a critical task for every FA40 Space Operations Officer and space Enabler.

## Why is this a critical task? Space is clearly a contested and congested domain. Consider these reports:

- North Korea has detonated a nuclear weapon underground and is testing missiles that could someday carry nuclear warheads. Iran says their nuclear ambitions are for peaceful energy purposes, but they resist inspections to verify their claims. The electro-magnetic pulse from a nuclear warhead aboard a missile could disable our satellites along with those of our allies.
- China disavowed its air force commander Xu Qiliang's statement last fall that called the militarization of space a "historical inevitability."<sup>3</sup> Yet, China has recently demonstrated a proven anti-satellite capability.
- Aside from a direct threat from a nation-state, American on-orbit technology faces threats from debris and out-of-control satellites like the defunct Russian satellite that smashed into and destroyed an Iridium satellite in February 2009.
- Since the cyber domain links space assets to the ground, and because that domain inherently relies upon space assets as a component of Department of Defense networks, we must acknowledge the threat our systems, networks, and forces face in this realm. Reports from the Government Accountability Office, other reports to Congress, and statements by the commander, U.S. Strategic Command assert that the country's commercial, private and government sectors are constantly under cyber attack and the number of attacks on our networks continue to grow: from 24,097 attacks in 2007 to 72,065 in 2008.<sup>4</sup> These attacks come "from the least sophisticated – what I would say the bored teenager – all the way up to the sophisticated nation-state, with some petty criminal elements sandwiched in between," says Gen. Kevin Chilton, Commander, U.S. Strategic Command.<sup>5</sup>

Because of the threats to on-orbit assets and the challenges facing Army forces in D3SOE, the Chief of Staff of the Army listed this as one of the Army's Title 10 Wargame Unified Quest 2010 key tasks: "Determine how to protect or mitigate the loss of space, cyber, and network-related capabilities." To that end, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command's Future Warfare Center Wargames Division launched a series of events to feed into Unified Quest 2010 which will be held at Carlisle Barracks this May. The results of each of these events will be published in this and future Army Space Journals. The final reports will lead to a better understanding of the space dependencies and vulnerabilities of strategic and tactical warfighters and will identify mitigation strategies in a denied, degraded, disrupted space operational environment to ensure delivery of critical enablers.

## What follows are preliminary findings from the first two events.

In December 2009 the USASMDC Future Warfare Center Wargames Division met with Soldiers assigned to 4th Infantry Division and 10th Special Forces Group to gain insight into how warfighters use space. Who better to know how they and their units are impacted by access, or non-access, to space-based capabilities than recently returned Soldiers who had been directly engaged in ground force missions. Not surprisingly, in this Warfighter Forum these warriors identified satellite communications and positioning, navigation and timing as their most critical space-based capabilities along with assured access to space capabilities. (Read the full report starting at page 34).

The findings from the Warfighter Forum were incorporated into the most recent event this past February called the Space Power Seminar Wargame on D3SOE. This seminar brought together senior FA40s; reps from the intelligence community, U.S. Army Training and Doctrine Command, and the signal community; senior advisors; and representatives from industry. Their task was to understand the Warfighters' space needs, dependencies, and vulnerabilities and then identify strategies to prevent or mitigate the loss of space, Cyber or network-related capabilities. The findings and recommendations from this will be rolled into Unified Quest 2010 to be tested and validated.

In his article on the 21st Century Army<sup>6</sup>, the Army Chief of Staff GEN George W. Casey Jr writes that land forces need to be versatile, tailorable, networked, and trained and ready for full spectrum operations. When the Army Chief of Staff talks about versatility, he is referring to being capable of operating across the spectrum of conflict. We must ask ourselves whether our units, be they space, infantry, field artillery, etc, are versatile enough to go from extensive reliance on space capabilities to a situation where they must continue to operate in an environment where space enabled capabilities are severely degraded or do not exist. I suggest we have a long way to go.

As we wait for the published results of this wargame series, members of our space community can implement at least one of the recommendations: train as we expect to fight. You can prepare your Soldiers, their units, and the ones they support to operate, survive, and win in a degraded, denied or disrupted space operational environment. To do this, Space Operations Officers and Space Enablers must understand exactly how their units rely on space. This is a critical task. Map the organization's use of space. Less battlespace – more time required to complete mission – more uncertainty – greater casualties – more fog of war) on your unit's ability to accomplish its mission essential tasks. The next step is to determine for each space system what the primary, alternate, contingency, and emergency backups, redundancies and pathways are and to develop solid battle drills using them which will allow

## Protecting Space >> From page 9

your unit to complete the mission by working through D3SOE. You need to practice these drills at every opportunity. Take the time to work through the impacts and avoid the tendency to just acknowledge there is an impact and move on before a full assessment is accomplished.

Another recommendation: we should strongly advocate for robust, redundant capabilities in the ground, air, high altitude, space and cyber domains. Pushing for a multi-domain resilient solution to D3SOE is accomplished at the strategic level with tactical implications. However, today space officers can educate their unit commanders on this need and commanders can then call for action and support realistic training.

Some of these strategies and recommendations for dealing with D3SOE may be validated in Unified Quest 2010. Some may not. Regardless, finding, advocating and implementing the doctrinal, operational, training, leadership, materiel, personnel and facility solutions to D3SOE is going to be necessary for the 21st Century Army that GEN Casey challenges us to build.

Space is now a contested and congested domain and it will become even more so. The threats are present today and growing. And the time it takes for bad actors to access the network links between space and ground terminals and to disseminate their chaos continues to shrink as does the time we have to respond. In fact, that amount of time is approaching nil. FA40s and space enablers are empowered to be “change agents” in their units NOW! We simply cannot continue conducting business as usual; we must be proactive. The Army Space community is charged to prepare and train their units to prevail if and when enabling space capabilities are stripped away. The most critical task today for the space community is to take action to ensure that Army units can recognize when their enabling space assets have been interfered with and to quickly adapt and sustain operations in order to prevail in a denied, degraded or disrupted space operational environment.

### Footnotes

- <sup>1</sup> Casey, Jr., GEN George W., “The Army of the 21st Century,” Army Magazine, October 2009
- <sup>2</sup> We could add fourth “D” for destroyed space systems.
- <sup>3</sup> “Beijing ‘opposed space arms race,’” Agence France-Presse, South China Morning Post, Nov 6, 2009
- <sup>4</sup> US Northern Command Special Security Office, Security News Letter, Vol 22, #4, April – June 2009.
- <sup>5</sup> Mills, Elinor, “US government spends over \$100M on cyberattack cleanup,” CNET News.com, Apr 8, 2009 [www.zdnetasia.com/news/security/0.39044215.62052979.00.htm](http://www.zdnetasia.com/news/security/0.39044215.62052979.00.htm)
- <sup>6</sup> Casey, Jr., GEN George W., “The Army of the 21st Century,” Army Magazine, October 2009

## Future of War >> From page 13

information, rather than making the assumption that it will always be provided and present when they need it. At the same time the concept recognizes the increasing need and importance that the Army defend its own networks in order to generate and preserve combat power.

U.S. space-based capabilities are an increasingly attractive target to our adversaries; all leaders – not just Army space leaders - must understand that there will be periods of time when space-based capabilities and systems are actively denied or degraded. Despite the recognition of our vulnerability, Army leaders have been reluctant to train in a degraded space environment. Usually the loss of SATCOM or position, navigation and timing is simulated, accompanied by the rationale that training time is too valuable to waste and that we cannot afford to deny or degrade space-based capabilities as it would detract from the main training objective. Consequently leaders and Soldiers are not trained to operate in a degraded space environment. The Army Capstone Concept provides the opportunity and rationale for rethinking this necessary training. In order to operate in a degraded environment, Army forces and leaders need to develop mitigation plans and strategies beforehand in order to successfully fight through these inevitable degradations. Army training, to include rotations at the Combat Training Centers, needs to routinely include denied or degraded space-based capabilities. Soldiers and forces should be practicing operations without satellite communications or GPS signals. They need to learn how to rapidly recognize degraded capabilities and take action to mitigate their loss, in order to preserve operational adaptability in an uncertain and complex environment.

In conclusion, the new Army Capstone Concept emphasizes operational adaptability. Leaders at all levels must have a mindset that is flexible, and they must be comfortable with collaborative planning and decentralized execution. At the same time our Soldiers must be able to tolerate and operate within ambiguous situations, and possess the ability and willingness to make rapid adjustments according to the situation. Space-based capabilities and systems enable the concepts, training and systems that make operational adaptability possible. The new concept, rather than constraining space operations, provides U.S. Army Space and Missile Defense Command and Space Operation Officers a new opportunity and foundation challenging us to further emphasize, provide, and develop space-based capabilities within the Army. Operational adaptability is dependent upon space.

“SECURE THE HIGH G



## Dr. Steven L. Messervy

Deputy Commander  
Research, Development and Acquisition



# Utilizing the High Altitude Airspace

**W**ithin U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, we focus daily upon providing space enablers to the Warfighter. Within the pages of the Army Space Journal, we've touched many times upon the subject of space enablers (Communications; Position, velocity, and timing; Environmental monitoring (space and terrestrial weather); Intelligence, surveillance, and reconnaissance; and Theater missile warning). We've also discussed in detail, our space and terrestrial based capabilities for providing and/or supporting these vital mission areas.

During the course of our discussions, we often overlook 265,000 feet of airspace (60,000 feet to 325,000 feet) that holds great potential for providing enduring support directly to the Warfighter. This area is called high altitude. It's an area of operations spanning from just above the ceiling of most aircraft to just below near earth orbit. USASMDC/ARSTRAT is the Army's proponent for high altitude, and we've been actively seeking methods of exploiting this area of operation for almost a decade.

Since the 2010 Winter edition of the Army Space Journal focuses on the space Warrior METL (Mission Essential Task List), I think it appropriate to include a discussion about our high altitude activities and how those activities add additional arrows in the space Warrior's quiver. This article provides the background and purpose behind our interest in near earth activities. It also provides an update on the systems we're working on.

**“We often overlook 265,000 feet of airspace (60,000 feet to 325,000 feet) that holds great potential for providing enduring support directly to the Warfighter. This area is called high altitude.”**

### **Background**

Nothing in the Army moves or shoots without a regulation to direct it, and USASMDC/ARSTRAT is no different. On Sept. 4, 2007, Army Regulation 10-87, made USASMDC the Army specified proponent for High Altitude. There is no established Service lead for High Altitude within the Department of Defense.

Appointment as the proponent for High Altitude capped approximately four years of work by members of the Future Warfare Center and the Technology Center in this arena. It also gave the Command the authority to execute the proponent mission within the Army. Outside of the Army, we engage the other Services through the Joint High Altitude Council (Memorandum of Agreement signed Nov 2005). The Joint High Altitude Council meets semi-annually, and serves as a forum for the Services to update each other regarding their development activities in High Altitude.

Within the Command, we've actively pursued three primary lines of effort: Experimentation, Documentation and Requirements, and Technology Development.

### **Experimentation**

Since 2003, the Future Warfare Center Battle Lab has been at the forefront of High Altitude concepts and capabilities within the Army and Joint Experimentation. The Army conducts experimentation as part of its “Campaign of Learning” in order to enable informed decisions, improve the combat effectiveness of the current and future force, and mitigate risk and cost. High Altitude has been represented in experimentation events every year since 2003. These events include ... Omni Fusion, Schriever Space War-game, Unified Quest, Unified Endeavor,

Earth, Wind, and Fire, Urban Resolve and the Digital Warfighter Experiment. At the conclusion of each event is an assessment of the value-added that High Altitude brings to mission success. These lessons serve as the basis for the next round of experimentation. Experimentation results have consistently pointed toward value added of High Altitude assets in providing persistent wide area surveillance, battle damage assessment, and enhanced communications.

These capabilities are vital to the Warfighter on the ground. Persistent – weeks to months – of continuous coverage, providing space enablers to the Soldier at the tip of the spear is of vital importance to the Warfighter. Determining the best use of High Altitude requires documentation of not only the capabilities provided by its systems and how they support Army concepts, but most importantly, the requirements of the Warfighter so that High Altitude systems can be assessed against the stated needs of the end user – the Soldier on the ground.

### **Documentation and Requirements**

The Future Warfare Center Battle Lab is actively working to include High Altitude into Army concepts. We use our input to these documents to articulate the role that High Altitude plays in support of Army warfighting functions. We've also worked to develop documentation that validates the ability of High Altitude to meet the stated needs of the Warfighter.

The High Altitude Enable Capabilities Assessment was completed in August 2009. This document assesses High Altitude enabled capabilities to determine their ability to provide viable solutions for mitigating Army gaps and satisfying Army requirements. “Findings from this assessment, and supported by other Army study and analytical efforts, are conclusive.

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Significant capability gaps exist now and will continue to exist beyond the current out-year funding for assured communications and persistent surveillance and reconnaissance. The High Altitude Enable Capabilities Assessment definitively finds that High Altitude capabilities, once developed, could play a significant role in mitigating those gaps and thus play a decisive role in mission success by enabling:

- Continuous, robust secure communications supporting Command, Control, Communications Computers, Intelligence, Surveillance and Reconnaissance for both static and on-the-move operations in complex terrain
- Network extension and expansion to widely-dispersed/isolated/ disadvantaged units
- Continuous and near real-time battle damage assessment information
- Sensor to shooter to support deep fire strikes at extended ranges
- Persistent, wide-area surveillance supporting Operational and Tactical Maneuver
- Greater communications coverage with fewer platforms and less force structure than lower altitude, shorter endurance platforms
- Capability provided under adversary threat and weather conditions that programs of record platforms cannot provide
- Improved Situational Awareness of the Commander's operational and tactical area of interest (including lower probability of Friendly Force fratricide)
- Lower attrition of Unmanned Aircraft System assets supporting surveillance and reconnaissance and communications functions
- Reapportionment of Unmanned Aircraft System assets to higher-priority missions
- Expanded and improved communications, surveillance and reconnaissance capabilities in support of Fires planning and execution<sup>1</sup>

We are in the process of completing the High Altitude Functional Solutions Analysis. This Analysis looks at materiel and non-materiel solutions to the gaps identified in the High

Altitude Enable Capabilities Assessment. Emerging results from the Functional Solutions Analysis indicate that it will recommend that a materiel solution is required to mitigate the remaining gaps in Army capabilities and that emerging High Altitude systems should be a part of that materiel solution. The draft should be out for coordination by the end of February 2010.

### Technology Development

USASMDC/ARSTRAT began its association with High Altitude during our participation in the original High Altitude Airship technology demonstration in 2003. Our Technology Center was the Technical Manager and our Future Warfare Center Battle Lab was the Operational Manager. The Technology Center leads our technology development efforts; especially in regard to developing lighter than air station-keeping airships. High Altitude technology efforts have included the original High Altitude Airship, High Altitude Long Endurance – Demonstrator, HiSentinel, and heavier than air initiatives; Zephyr, Global Observer, and Orion.

As High Altitude technology is developed, our Future Warfare Center Battle Lab, serving as our Operational Manager, works to mature and demonstrate it to the Army and the Warfighter. We currently have a testing flight/demonstration for the Global Observer scheduled for the second quarter of Fiscal Year 2010. HiSentinel 80 and High Altitude Long Endurance - Demonstrator will also fly in the second or third quarter of Fiscal Year 2010. In the next issue of Army Space Journal, I will write about the programs underway, including the Long Endurance Multi-Intelligence Vehicle.

### Conclusion

What does all of this mean for you, the space professional? It means High Altitude is moving closer and closer to operational reality. The Army recognizes the need for and the application of High Altitude to meet the Warfighter's operational requirements. As we discuss the Mission Essential Task List for various space and ground based systems, we may want to start factoring in High Altitude. The Army through USASMDC/ARSTRAT currently has the greatest breadth of High Altitude activities across Doctrine, Operations, Training, Materiel, Leadership Development, Personnel and Facilities of any Service. I fully expect we'll be at the forefront of any operational deployment.

#### Footnotes

<sup>1</sup>High Altitude Enabled Capabilities Assessment, pp 5-6



**COL Bruce Smith**

Director  
Directorate of Combat Development  
Future Warfare Center



# Adapting & Understanding the Future of War

**I**n late December last year the Army published the Army Capstone Concept. The concept is subtitled “Operational Adaptability: Operating under conditions of Uncertainty and Complexity in an Era of Persistent Conflict.” The new concept is a guide to how the Army will apply available, yet dwindling, resources to overcome adaptive enemies, while concurrently articulating how to think about future armed conflict. This concept will serve as the foundation to drive development and modernization efforts. It provides the common framework for thinking about the conduct of future joint land operations under the conditions of uncertainty and complexity. The Army Capstone Concept helps place modernization decisions within the context of future armed conflict and establishes the conceptual foundation of our DOTMLPF (doctrine, organization, training, materiel, leader development, personnel and facilities) requirements and development.

During the last two decades many believed that the United States’ competitive advantages in communications, information, and precision strike technologies produced a “revolution in military affairs” (RMA). Advocates of RMA believed that technology offered the Army a new way to fight a war that provided revolutionary abilities to find, identify, and target enemy

forces with increased speed, precision and lethality. RMA promised to provide unparalleled situational awareness that would enable commanders to see through the fog and friction of war, giving them unprecedented levels of certainty and assurance. Unfortunately proponents of RMA frequently failed to recognize the limitations of these new technologies and emerging threat military capabilities. Military concepts that relied on long range targeting and robust networks often divorced war from its human context; political, cultural, and psychological. RMA and defense transformation-related thinking influenced Army doctrine, organization, manning, and modernization plans in ways that did not always reflect the reality of our forces’ experiences on the ground in Afghanistan or Iraq.

Almost a decade of land combat operations has reinforced the fact that land warfare is fought in complex and uncertain environments. Political, cultural and psychological factors impact operations and cloud a commander’s situational awareness in ways technology alone cannot overcome. Army forces will continue to fight under these conditions of uncertainty and complexity. The Army Capstone Concept recognizes this fact, as well as the need for the Army to prepare to modernize and operate in this evolving and ambiguous environment. Rather

**“The Army will remain dependent upon space-based capabilities such as satellite communications and position, navigation and timing to execute operations in uncertain and complex environments.”**

than relying on perfect situational awareness, provided by technology, future forces and leaders must strive to reduce uncertainty through a mindset of operational adaptability. Soldiers must understand the situation in depth, develop the situation through action, fight for information, and continually reassess – adapting as the situation demands. Leaders must be comfortable using their best judgement, and be willing to take prudent risks with the understanding that they will not have all the information and facts that they would like or might need. Uncertainty and ambiguity cannot be completely overcome, but operational adaptability can help mitigate their effects.

Operational adaptability is essential to developing situational understanding and seizing, retaining and exploiting the initiative. It is impossible to foresee the future, but developing leaders confident in operational adaptability will give the Army the ability to recover from surprise and exploit unforeseen opportunities. Operational adaptability requires that Soldiers master the operational art, or the ability to link the tactical employment of forces to policy goals and strategic objectives. It also demands Army forces that are proficient in tactical warfighting fundamentals and who possess common understanding of how to combine joint, Army, interagency, and multinational capabilities.

The Army Capstone Concept identifies a group of new, critical, and different capabilities that it's Soldiers and forces require to fight and win in a complex and uncertain operating environment. Although the capabilities are listed in five broad categories; Battle Command, Movement and Maneuver, Fires, Protection, and Sustainment, the underlying theme or link is greater adaptability or versatility across the force in order to cope with the future environment. Although not all inclusive, key Army required tenants or capabilities include: “mission command, train as we fight, command forward from mobile platforms, fight degraded, operate decentralized, defend networks,

fight for information, and conduct reconnaissance to develop the situation.” What is immediately obvious is that there are no space specific capabilities listed. In fact the Army Capstone Concept does not discuss space at all.

Does the exclusion of space from the concept mean that the Army is changing its view on the importance of space and space-based capabilities? Is the Army throwing out space as it de-emphasizes RMA and technology and promotes the concept of operational adaptability? The short answer to both questions is no. Although space-based capabilities are not specifically addressed in the new Capstone Concept it is easy to see the linkages and dependencies that space-based capabilities provide to the Army and to the concept of operational adaptability. Space is no less important to the Army in this new concept. The Army will remain dependent upon space-based capabilities such as satellite communications and position, navigation and timing to execute operations in uncertain and complex environments. Satellite communications and PNT provide the means to command forward from mobile platforms as well as operate in a decentralized manner. Space based – capabilities enable a unit to fight for information, as well as to conduct reconnaissance in order to develop the situation. Space-based capabilities and systems continue to enable Army operational capabilities within an uncertain and complex operating environment.

The findings from a variety of forums over the past several years, including the Allard Commission and the Space Posture Review, recognize that space-based capabilities are increasingly vulnerable. The Capstone Concept while not specifically calling out this growing vulnerability to the Army does point out that Army forces must be able to fight degraded which includes space-based capabilities as well as degraded communications and command and control networks. The new concept also emphasizes the need for Soldiers to actively fight for

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your unit to complete the mission by working through D3SOE. You need to practice these drills at every opportunity. Take the time to work through the impacts and avoid the tendency to just acknowledge there is an impact and move on before a full assessment is accomplished.

Another recommendation: we should strongly advocate for robust, redundant capabilities in the ground, air, high altitude, space and cyber domains. Pushing for a multi-domain resilient solution to D3SOE is accomplished at the strategic level with tactical implications. However, today space officers can educate their unit commanders on this need and commanders can then call for action and support realistic training.

Some of these strategies and recommendations for dealing with D3SOE may be validated in Unified Quest 2010. Some may not. Regardless, finding, advocating and implementing the doctrinal, operational, training, leadership, materiel, personnel and facility solutions to D3SOE is going to be necessary for the 21st Century Army that GEN Casey challenges us to build.

Space is now a contested and congested domain and it will become even more so. The threats are present today and growing. And the time it takes for bad actors to access the network links between space and ground terminals and to disseminate their chaos continues to shrink as does the time we have to respond. In fact, that amount of time is approaching nil. FA40s and space enablers are empowered to be “change agents” in their units NOW! We simply cannot continue conducting business as usual; we must be proactive. The Army Space community is charged to prepare and train their units to prevail if and when enabling space capabilities are stripped away. The most critical task today for the space community is to take action to ensure that Army units can recognize when their enabling space assets have been interfered with and to quickly adapt and sustain operations in order to prevail in a denied, degraded or disrupted space operational environment.

### Footnotes

- <sup>1</sup> Casey, Jr., GEN George W., “The Army of the 21st Century,” Army Magazine, October 2009
- <sup>2</sup> We could add fourth “D” for destroyed space systems.
- <sup>3</sup> “Beijing ‘opposed space arms race,’” Agence France-Presse, South China Morning Post, Nov 6, 2009
- <sup>4</sup> US Northern Command Special Security Office, Security News Letter, Vol 22, #4, April – June 2009.
- <sup>5</sup> Mills, Elinor, “US government spends over \$100M on cyberattack cleanup,” CNET News.com, Apr 8, 2009 [www.zdnetasia.com/news/security/0.39044215.62052979.00.htm](http://www.zdnetasia.com/news/security/0.39044215.62052979.00.htm)
- <sup>6</sup> Casey, Jr., GEN George W., “The Army of the 21st Century,” Army Magazine, October 2009

## Future of War >> From page 13

information, rather than making the assumption that it will always be provided and present when they need it. At the same time the concept recognizes the increasing need and importance that the Army defend its own networks in order to generate and preserve combat power.

U.S. space-based capabilities are an increasingly attractive target to our adversaries; all leaders – not just Army space leaders - must understand that there will be periods of time when space-based capabilities and systems are actively denied or degraded. Despite the recognition of our vulnerability, Army leaders have been reluctant to train in a degraded space environment. Usually the loss of SATCOM or position, navigation and timing is simulated, accompanied by the rationale that training time is too valuable to waste and that we cannot afford to deny or degrade space-based capabilities as it would detract from the main training objective. Consequently leaders and Soldiers are not trained to operate in a degraded space environment. The Army Capstone Concept provides the opportunity and rationale for rethinking this necessary training. In order to operate in a degraded environment, Army forces and leaders need to develop mitigation plans and strategies beforehand in order to successfully fight through these inevitable degradations. Army training, to include rotations at the Combat Training Centers, needs to routinely include denied or degraded space-based capabilities. Soldiers and forces should be practicing operations without satellite communications or GPS signals. They need to learn how to rapidly recognize degraded capabilities and take action to mitigate their loss, in order to preserve operational adaptability in an uncertain and complex environment.

In conclusion, the new Army Capstone Concept emphasizes operational adaptability. Leaders at all levels must have a mindset that is flexible, and they must be comfortable with collaborative planning and decentralized execution. At the same time our Soldiers must be able to tolerate and operate within ambiguous situations, and possess the ability and willingness to make rapid adjustments according to the situation. Space-based capabilities and systems enable the concepts, training and systems that make operational adaptability possible. The new concept, rather than constraining space operations, provides U.S. Army Space and Missile Defense Command and Space Operation Officers a new opportunity and foundation challenging us to further emphasize, provide, and develop space-based capabilities within the Army. Operational adaptability is dependent upon space.

“SECURE THE HIGH G

# LEARNING FROM THE BATT

From Task Force Band of  
Brothers in OIF to Combined  
Joint Task Force-101 in OEF





# INTERVIEW

■ MAJ MICHAEL BANCROFT  
U.S. ARMY, FA40

Over a half a decade ago Joint Publication 3-14 laid the foundation for U.S. Military space forces. No longer were the days of “carpet bombing” and limited precision bombs. This is as we know the evolution of precision ordinance, better leveraged Intelligence, Surveillance, Reconnaissance and rapid technical solutions. Tactics, techniques and procedures are valid until the day after your transfer of authority to the follow on replacement unit; this is the simple reality of asymmetric warfare. Fresh ideas and new techniques, equipment, personnel structures and missions generally arrive with the incoming unit. The previous unit’s concept of operation immediately becomes subject to change in order to meet a flexible and capable enemy. The cycle continues; pre-deploying units learn current tactics while attempting to improve them. Upon execution of current and learned tactics, techniques and procedures, the unit communicates to their relief with what is working and what doesn’t. Army space forces must mirror this effort by improving, not thriving on the success of past units. Functional Area 40s have been trained since the late 1990s to be the U.S. Army space experts. Prior to Army transformation, the idea of merging ground units with traditional strategic overhead assets was not viewed as a priority discussion topic to a maneuver ground unit. After a successful decade of assisting the planning and operational staffs to think “space” enhancement, the U.S. Army is more proactive toward space-based asset troubleshooting and proactive space planning than ever before. This did not happen through educational briefings alone; this occurred by daily interaction of other military professionals, both officer and enlisted Soldiers.

In 2005, the 101st Task Force Band of Brothers Space Support Element deployed a diverse team of personnel as members of the first transformational division supporting Operation Iraqi Freedom IV in 2005-2006. Key 101st Space Support Element leaders educated Task Force Band of Brothers staff to better understand the Space Support Element concept, new skill sets and capabilities as they emerged and that set the groundwork for the Combined Joint Task Force (CJTF) -101 Space and Special Technical Operations that currently operate in Afghanistan. The CJTF-101 Space Special Technical Operations is one of the few units still manned with 25S (Satellite Communications Systems Operators and Maintainers) who are critical to the daily operations of the CJTF-101’s Afghanistan Space Operations Center and staff. Enlisted professionals with proper space related education and training can greatly enhance the space community if properly leveraged as they have been in the 101st Space Support Element. Other branches and functions of the Army staff utilize space-based assets, many of these other assets are operated and managed by dedicated Noncommissioned Officers; Noncommissioned Officers that have been well trained to perform these duties as functional professionals. Army space systems are no different, especially those responsible to operate SATCOM and analysis software. The 101st space Noncommissioned Officers are the most experience personnel in the section due to exposure; space focused education and total time integrated with the division’s staff. The 101st Airborne Division (Air Assault) began a movement in Operation Iraqi Freedom IV and has demonstrated just how capable a space team can be when properly equipped with “space smart” Soldiers. Army space forces should identify Noncommissioned Officers with space experience and

SSG Ken Merritt instructs Soldiers in the Afghanistan Space Operations Center.



lobby to retain them for future space-based units. The mission requirements changed in Iraq from imagery production to 24/7 special programs support and space analysis in the Afghanistan Space Operations Center, this could not be accomplished if the CJTF-101 was not manned with proper space educated Soldiers who understand space integration.

The U.S. Army Space and Missile Defense Battle Lab's Space Operations Systems provides a critical analysis tool that enables tactical space support teams to function as elements that can bring capabilities beyond textbook knowledge to the fight. In Afghanistan, nearly all of the software tools installed on the space Operations Systems are used, some much more than others. One major tool that the CJTF-101 Space Special Technical Operations quickly realized to be valuable for space analysis is the Analytical Graphics, Inc. Satellite Toolkit, which merely required a zero-cost one week training comprehensive course available to all users. This software support has the capability to perform nearly all the functions supporting the Operation Enduring Freedom mission. From three-dimensional fly through modeling, line of sight analysis, and coverage definitions, Satellite Toolkit has proven its value in Operation Enduring Freedom on numerous occasions. For the FA40 community to build a reputation as professionals, a tool like the Satellite Toolkit must be a standard throughout the career field. The comprehensive course for the Satellite Toolkit must immediately integrate this course into the Space Operations Officer Qualification Course as a basic requirement to all FA40s. The Army variant of the Satellite Toolkit, Analytical Graphics, Inc.'s, Deployable Space Analysis Tool, helps to simplify the complex user interface of the Toolkit which is a major hindrance to those

with access to the software. The Deployable Space Analysis Tool is a perfect example of the evolving functions and support of space professionals to the warfighter. It was developed relatively early during the Global War on Terrorism to fulfill the needs of the space warfighter through GPS coverage/analysis, imagery and fly through models. Today's fight requires integration of numerous overhead systems integrated in the modeling of mobile and fixed ground assets. As the Theater for Operation Enduring Freedom continues to establish fixed assets, basic space enabled capabilities (i.e. imagery, SATCOM links, increased bandwidth, etc ...) have become "normalized" into staff operations. The efforts of the Deployable Space Analysis Tool have now become outdated and rarely utilized by current deployed space forces. CJTF-101 Space Special Technical Operations had to learn and leverage available space systems while standing up special program capabilities. Tools like Satellite Toolkit allowed the CJTF-101 Space Special Technical Operations to remain flexible and adaptable to current and future rotations. The CJTF-101 Space Special Technical Operations is additionally equipped with a Space Combat Receive Suite system while deployed to Afghanistan. This joint effort between both space-based and non-space based agencies produce tactical space ground system that is a fully portable system which delivers near real-time blue force tracking, personnel recovery, theater missile warning and infrared significant events. Space Operations System applications, software tools, 24/7 manning, and countless other space tasks are performed requiring the emergence of a capable space focused operations center. These resources employed by a well-trained Space Support Element provide the Regional Command-East Joint Operations Center with constant space situational awareness and support.

To adapt to the current fight, FA40s must focus on integrating emerging technologies, as previously integrated technologies are normalizing. JP 3-14 (to include the recent edition), along with many other military publications and equipment,

SSG Jason Burnett makes adjustment with help from MAJ Chris Oxendine.



LTC Pat Mullin and MAJ Chris Oxendine head out on a mission.



continues to be tested against the evolving combat environment. While embracing Special Technical Operations and Alternative Compensatory Control Measures, space elements are provided with critical resources that may not normally be reserved for space force enhancement and planning. Efforts such as the Tactical Space Operations Course are great initiatives to help prepare the space professionals to understand the countless new and emerging tactics, techniques and procedures. It is important to share how space support is being utilized today, not two rotations ago, to both fellow space support units but also to new FA40s in the Space Operations Officer Qualification Course who will quickly pick up the mission. Current fielded hardware must be evaluated against and integrated into other current systems such as the Space Combat Receive Suite. Currently there is no standardized space common operating picture that is supported by all services or even within the U.S. Army. Satellite Toolkit is the preferred tool of the Afghanistan Space Operations Center for CJTF-101, however this is a not a widespread concept for deployed forces. The capabilities of the Space Combat Receive Suite, the Satellite Toolkit and Environmental Sciences Research Institute ArcGIS (ArcMap) can sum up the basic

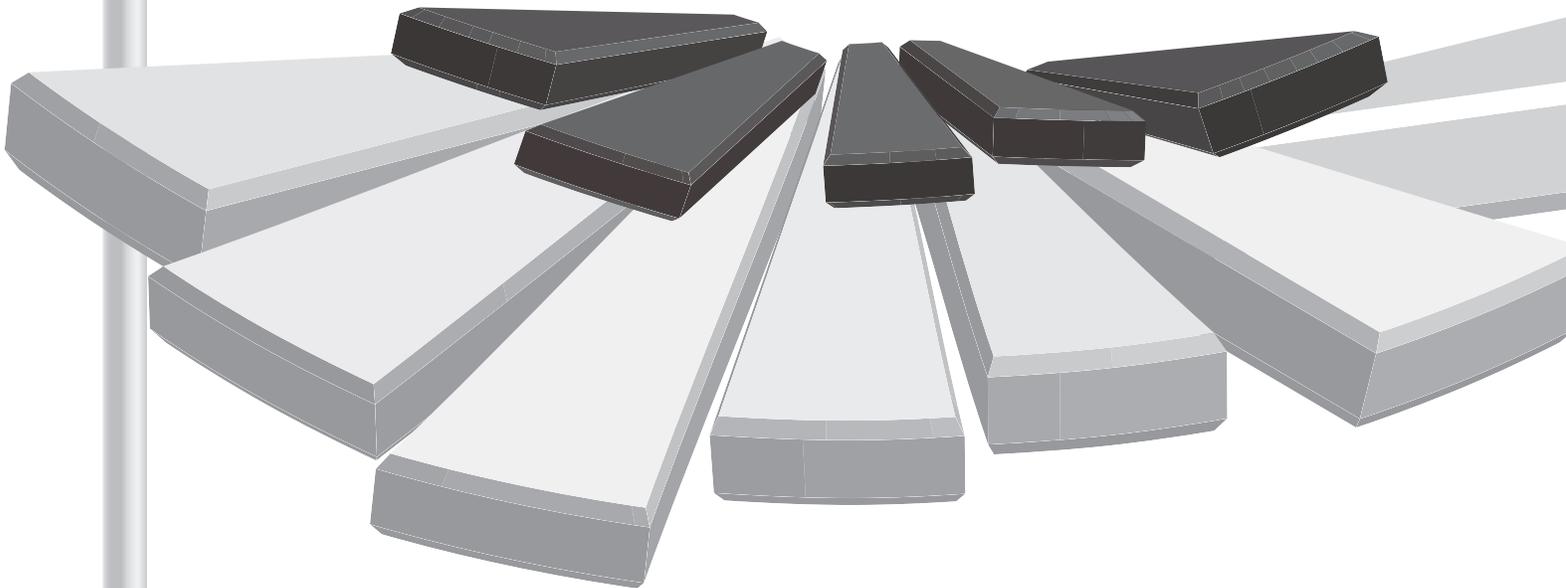
MAJ Michael Bancroft on a mission.



requirements for tactical space units. The future of combat space forces begins with the extraction of near-real time space collects, rapid analysis and quick turnaround of products to the warfighter. Upgrades to the SATURN system to reduce the size and emplacement procedures of independent communication suites should also be part of the next generation space support equipment set to facilitate quicker emplacement and reduce mission drag from equipment failure. Having a standard space common operating picture amongst all services and reach back organizations (Joint Space Operations Center, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Operations Center, Space and Missile Defense Battle Labs) will help streamline Contiguous United States support and enhance the sharing of capabilities between deployed space personnel. Once a standard foundation of software, hardware and technical capabilities is developed, it must be provided to all Army Space Support Teams, Space Support Elements, Commercial Imagery Teams and space supported operations centers to ensure training is accomplished on a regular base versus setting an environment of last minute personnel fills and equipment train ups. Beyond the requirement for new, updated and innovative equipment, deployable U.S. Army space forces must break from the old success stories, remain flexible and continue to evolve with the transformational army now, before the tactical space elements fall back to just a pure strategic support. Our efforts now must demonstrate to the warfighter that space-based assets and capable space professionals are enhancing our ability to win. ⚠️

■ MAJ JOSEPH GUZMAN  
SMDC, TRADOC CAPABILITY MANAGER  
BALLISTIC MISSILE DEFENSE SYSTEMS

# SPACE OPERATIONS OFFICERS as Jazz Musicians



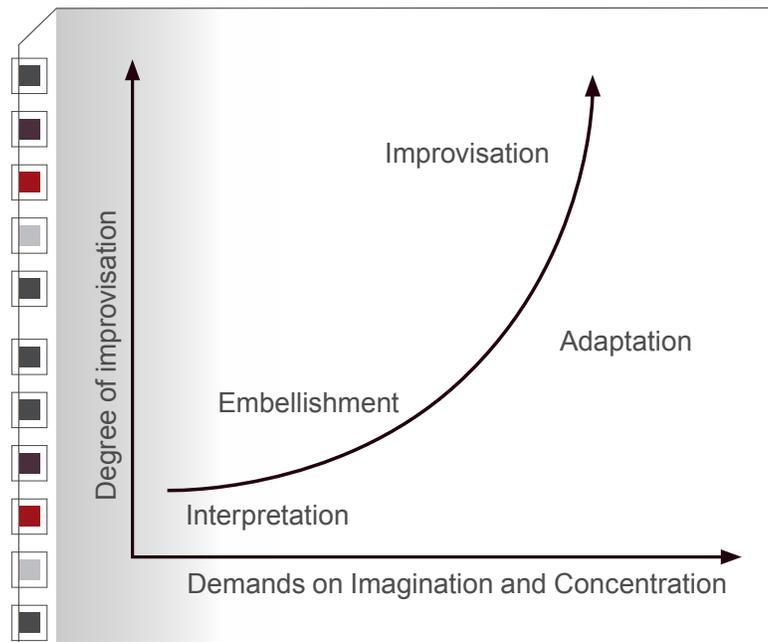


Figure 1

Improvisation  
Continuum

Looking through the lens of “organizations as jazz bands,” I investigate how adding Space Operations Officers (Functional Area 40s) to Corps and Division staffs has enabled them to improvise, which has paid dividends in the contemporary “high-volatility, uncertainty, complexity and ambiguity (VUCA) “ contemporary operating environment. I shall first introduce Karl E. Weick’s concept of improvisation as it relates to jazz and organizational theory. I will then argue that the Army has taken initial, if accidental, steps to adapting to the contemporary operating environment, which dictates a more decentralized approach to organizational design, by adding Space Operations Officers to the staffs of Divisions and Corps over the last five years. Finally, I will offer up suggestions by which FA40s assigned to Corps and Division staffs might develop the potential to play an integral role in combat at the operational level.

Dr. Karl E. Weick argues in his paper entitled “Improvisation as a Mindset for Organizational Analysis,” that organizations exhibit many qualities associated with the art form of jazz music. In the essay, he cites jazz musicians who explain the qualities that define jazz, how they practice the art form and how they develop the capabilities to improvise. Weick defines improvisation as the reworking of “precomposed material and designs in relation to unanticipated ideas conceived, shaped and transformed under the special conditions of performance, thereby adding unique features to every creation.”<sup>1</sup> In order to improvise, Weick argues, Jazz masters make “major investments

in practice, listening and study” in order to create unique works of art under the pressure of live performance.<sup>2</sup>

### Improvisation Continuum

Figure 1 illustrates Weick’s “degrees of improvisation.” Improvisation lies on a continuum which places more demands on the musician’s imagination and concentration as he or she drifts further from the fundamental melody and toward a new artistic expression of an idea.<sup>3</sup> This model may be used to appreciate the degree of difficulty associated with playing Jazz. Not only must the artist master the instrument, chords, rhythm and interaction with other musicians and the audience, but Jazz musicians must fully apply the abstract concepts of imagination and concentration to truly improvise. The complexity of interactions between band members and the unpredictability of creating expressions of music in the changing environments of different venues, audiences and even the mood swings of individual artists make jazz a revealing metaphor for combat operations.

In his paper entitled, “The New Military Decision Making Model – A Systems Thinking Approach,” Dr. Chris Paperone offers that our perceptions of the contemporary operating environment continue to expand in terms of VUCA. He argues that simple problems which can be scoped and defined in terms of known solutions can be addressed by highly structured organizations in a “programmatic style.”<sup>4</sup> For instance, replacing a blown tank engine in a home-station training environment can be accomplished through the cooperation of the crew, the



The Army's first experimental FA40 "Space Operations Officer" CPT Bill McClagan (center). He served, experimentally, as an organic Space Operations Officer with the G3 10th Mountain Division, Fort Polk, La., during Millennium Challenge 2000/Joint Contingency Force Advanced Warfighting Experiment, August 2000.<sup>8</sup>

company maintenance section, and associated support personnel in the battalion. The methods for recovering the inoperable tank, ordering the replacement parts and turning the wrenches are well practiced skills with documented tactics, techniques and procedures. Through routine application of these tactics, techniques and procedures, the problem is solved and the tank is brought back to a Fully Mission Capable status. Conversely, the most complex problems must be handled in an entirely different manner, requiring a different type of organization with a different rule set.

In their seminal article on "wicked problems," Rittel and Webber lay out some of the characteristics of the most complex of dilemmas facing leaders in high-VUCA environments. Wicked problems, according to Rittel and Webber, exhibit the following traits which are echoed in U.S. Training and Doctrine Command Pamphlet 525-5-500, Commander's Appreciation and Campaign Design:

### Some Characteristics of Wicked Problems<sup>5</sup>

1. There exists no definitive formulation of a wicked problem. Canned solutions do not exist, which makes even the statement of the problem into a complex endeavor.
2. Wicked problems have no stopping rule. There is no "end" to a wicked problem.
3. Solutions to wicked problems are not true-false (logical in nature), but good-bad (subjective in nature).
4. There is no ultimate test of a solution to a wicked problem. One cannot model all of the variables which may bear on the problem.
5. Every solution is a "one shot operation;" there is no opportunity to learn by trial and error. Every attempt counts significantly.

6. Wicked problems do not have an enumerable set of potential solutions, nor is there a well described set of operations that can be incorporated into the plan.
7. Every wicked problem is essentially unique.
8. Every wicked problem can be considered a symptom of another problem.
9. The existence of a discrepancy representing a wicked problem can be explained in numerous ways. The choice of explanation determines the nature of the problem's resolution.
10. The problem solver has no right to be wrong.

An example of a wicked problem is the emergence of Mexican drug cartels over the last forty years. The existence of the cartels represents a threat to citizens living along the U.S.-Mexican border and even deep within the Mexican and American interiors. Furthermore, the cartels over time have interwoven themselves within the very fabric of U.S./Mexican socio-economic structure. To completely eliminate the cartels would wreak havoc on the Mexican economy, destabilize its already fragile political system and cause a major humanitarian crisis, all of which would have adverse effects on the United States. Failure to address the problem could lead to a failed state along the U.S. Southern border. These realities beg the question: How do we frame a problem to which we have no pre-determined solutions? Paperone suggests that a way to approach wicked problems lies in the way leadership shapes the organization. He argues that "high-VUCA" environments demand decentralized, improvisational and adaptable organizations and demand that leaders relinquish the control of operations to subordinate units, perhaps even to individual soldiers. The organization must apply what Paperone calls "emergent decision making"<sup>6</sup> In short, Army organizations must learn to play jazz.

The Army has always allowed units to interpret and embellish, however, it has yet to get comfortable with operating in the

face of high end demand for improvisation (see Figure 1). The environment, represented in the jazz metaphor as the audience and venue, wants to hear jazz and the “big Army” responds with a play list of cover songs – artifacts like hierarchical organizational structures and attempts to predict the characteristics of future combat. A serendipitous example of Army leadership shaping its organizations toward emergent decision making lies in the fielding of Space Support Elements to staffs at the Corps and Division Level. Ironically, VUCA set the stage for an impromptu jazz session.

In the summer of 2003, the Chief of Staff of the Army, GEN Erik Shinseki, made the decision to “modularize” the force six years ahead of schedule with initial fielding to occur by 2004. The original Army Transformation Plan called for initial fielding in 2010. While the most visible units associated with “modularization,” termed “Units of Action,” are currently referred to as Brigade Combat Teams, other fundamental changes were taking place with respect to the Corps and Division staffs. The transformation plan involved a replacement of three command echelons, the Division Headquarters, Corps Headquarters and Army Headquarters, with two, referred to as “Unit of Employment X” (UEX) and “Unit of Employment Y” (UEY). The UEX was to become the Army’s principle warfighting headquarters, designed to command and control several Brigade Combat Teams or serve as a Joint Task Force Headquarters. The UEY would perform the service component duties of Administrative Control. With an anticipated ten year timeline for the delivery of the first modular units, the Combined Arms Center began running advanced warfighting experiments designed to shape the respective staffs as early as August 2000 with the Millennium Challenge 2000/Joint Contingency Force Advanced Warfighting Experiment. A lone Space Operations Officer, CPT Bill McClagan, participated in the exercised as part of the 10th Mountain Division G3 and advised the command on the application of space based force enhancement including Intelligence, Surveillance and Reconnaissance, Satellite Communications (SATCOM), and Precision Navigation and Timing, among others. The experiment turned out to be a success. Consequently, the requirement for one FA40 on the Division staff expanded to include additional personnel and equipment forming the first Division Space Support Element, with MAJ Dave Hotop serving as Officer in Charge. The experimental Space Support Element exercised with the 82nd Airborne Division Headquarters at Millennium Challenge in August 2002. The experiment again proved successful. A Space Support Element was assigned to the first modular division headquarters, the 3rd Infantry Division, in 2004 and deployed to Iraq from January 2005 to January 2006.<sup>7</sup> During the same timeframe, FA40s established themselves on Corps level staffs with MAJ Robert Guerriero at III Corps, MAJ Gordon Quick at XVIII Airborne Corps and LTC George Wingfield at V Corps.

With inter-agency and academic experiences to draw from, FA40s brought unique skill sets to the battlefield, but did not have a traditional place on their respective staffs. This created an opportunity for Space Officers to contribute in ways not imagined during the advanced warfighting experiments.

During the Millennium Challenge Experiments of 2000 and 2002, FA40s operated in experimental environments which facilitated the application of “theoretical” Space Force Enhancement, including support to Intelligence, Surveillance and Reconnaissance, SATCOM, Theater Missile Warning and Precision Navigation and Timing. With the Space Support Element Toolkit, FA40s provided their staffs with easy access to map and imagery products, predictions of enemy satellites overhead, early entry Satellite Communications in austere environments and access to Missile Warning Networks. The Space Support Element would essentially eliminate some of the fog and friction of war through the application of technology. The outbreak of war threw a monkey wrench into the plan as BG H.R. McMaster notes in his article, “Learning from Contemporary Conflict to Prepare for Future War.” BG McMaster highlights the flaws associated with trying to predict the qualities and characteristics of future warfare and advocates a close analysis of our recent experiences to determine a way forward.<sup>9</sup> This closely resembles how a jazz musician analyzes the string of notes he just played to find the best way to “answer his own musical question” with his next run of notes, to “create his form retrospectively.”<sup>10</sup> Needless to say, the contemporary operating environments of Counter-Insurgency Operations in Iraq and Afghanistan did little to validate the predictions of the Millennium Challenge experiments which were based on a large scale conventional conflict.

Our enemies in Operations Iraqi Freedom and Enduring Freedom did not rely on space-based products to any significant degree. As the theater matured, Coalition Force capabilities morphed and adapted. Soon, the SIPRNET spread down to the Company level, allowing unprecedented access to intelligence products and raw data. Hundreds if not thousands of SATCOM dishes dotted Forward Operating Bases as the use of SATCOM became more commonplace. Theater Ballistic Missiles were no longer considered a threat. In short, Space Operations Officers would be better employed elsewhere on staffs; many of the tasks FA40s were designed to do have become normalized, analogous to checking e-mail or submitting collection requirements through established channels. FA40s recognized this as an opportunity to apply their skills to other efforts such as Counter-Improvised Explosive Device, Personnel Recovery, Information Engagement, and Psychological Operations. Space Operations Officers facilitated coordination between other staff elements to create opportunities for numerous small scale successes, all of which combined to form a significant contribution to the campaign. Much like jazz musicians, FA40s interacted well

with other band members, listened to what they were “playing” and tried to complement them. Mistakes were made. Lessons were learned.

Space Operations Officers represent a relatively small percentage of all officers with only 235 FA40s at last count. Chartered primarily to bring “space to mud,” FA40s provide soldiers with leverage from space based sensors and transponders. Secondly, FA40s must bring operational experience back from the battlefield to ensure that the Army’s equities are considered in the development of requirements for the next generation of space assets. However, when an FA40 reports to a Corps or Division Space Support Element job, additional preparations are in order. He or she must be able to join in a jazz “jam session” in progress. The campaign plan provides the fundamental melody from which to diverge. The operating environment provides an audience from which to draw inspiration. The staff and soldiers play the instruments of war.

Weick offers that aspiring young jazz students should “mix listening with history, practice, modeling, and learn[ing] the fundamentals” of their craft in order to become masters.<sup>11</sup> In order to deal with the high-VUCA contemporary operating environment, FA40s can benefit their staffs by mastering the fundamentals of their particular fields of expertise. More importantly, the officer must be prepared to apply his or her expertise in innovative ways to create opportunities to exploit the enemy’s weaknesses. Individuals should not only study historical and cutting edge Space Operations in preparation for war, but should also place emphasis on learning about other staff functions. Attending courses such as the Special Technical Operations Planner’s Course, Electronic Warfare Course and Military Deception Course increase the depth of the individual’s appreciation of the Operating Environment, enabling the Staff Officer to better support subordinate units and create staff linkages where none existed previously. Just as individuals can improve their abilities to improvise, organizations can also take steps to enable themselves to deal with high-VUCA situations. The following is a listing of organizational characteristics derived from Weick’s piece which have been adapted to military practice.

## Conclusion

In conclusion, the contemporary operating environment, one of high-VUCA, demands that Army organizations be capable of improvisation. To some degree, this fact is recognized among Corps and Division staff officers and commanders. However, we still cling to our branches and sequels like our favorite tunes from our collective glory days. The act of extensive planning provides us with the comfort that we have “done our homework” and we understand our critical capabilities, vulnerabilities and requirements. Despite this, we know that plans go out the window at LD because the enemy and the environment each “have a vote.” Meanwhile, we lose precious time and initiative to our enemies who are proficient in the art of Jazz. We do not have the time to compose a symphony, rehearse and play a flawless performance. Our audience, the operating environment, wants to hear us play Jazz and we must be better than the competition. Traditional planning gives us the time to learn while emergent decision making uses that time to execute inside of the enemy’s decision cycle. In short, be a team player; create opportunities for others. Educate yourself; broaden your appreciation of the Operating Environment. Practice on real problems; create real solutions. Tolerate mistakes. Act on instinct. Take advice to heart. Focus more on what just happened and less on the future. Play jazz. 

### Footnotes

<sup>1</sup> Karl E. Weick, “Improvisation as a Mindset for Organizational Analysis.” *Organization Science* Vol. 9, Number 5, September, 1998. 544.

<sup>2</sup> *Ibid.*

<sup>3</sup> *Ibid.*

<sup>4</sup> Christopher Paperone, “New Military Decision-Making Model, A Systems Thinking Approach.” 2009. 17.

<sup>5</sup> Horst W.J. Rittel and Melvin M. Weber, “Dilemmas in a General Theory of Planning.” *Policy Sciences*, 4, 1973, 161-67.

<sup>6</sup> Paperone. 27.

<sup>7</sup> Personal correspondence with Mr. Bill Coffey, Army Space and Missile Defense Command Directorate of Combat Development.

<sup>8</sup> Photo provided by Mr. Bill Coffey.

<sup>9</sup> H.R. McMaster, “Learning from Contemporary Conflicts to Prepare for Future War.” *Foreign Policy Research Institute*, October 2008.

<sup>10</sup> Weick, 547.

<sup>11</sup> *Ibid.*, 552.

## Characterization of Staffs with High Capability for Improvisation

1. Willingness to forego planning in favor of acting in real time
2. Understanding of organic resources
3. Proficient without specific guidance or analysis
4. Ability to agree on a minimally restrictive plan which facilitates improvisation
5. Open to departure from the Standard Operating Procedures
6. Rich and meaningful themes on which to draw for lines of operation
7. High confidence to deal with non-routine events
8. Skillful at paying attention to the performance of others in order to keep the interaction going and set up interesting possibilities for one another.
9. Preference for process rather than structure

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# UNIFIED QUEST 2010



## Part 1

# Warfighter Forum

■ BY GEORGE LUKER, SANDY YANNA AND ROBERT NIEVES

In support of the Army's Title 10 Wargame Unified Quest 2010, U.S. Army Space and Missile Defense Command/Army Strategic Forces Command (USASMDC/ARSTRAT) conducted a Warfighter Forum devoted to gaining direct insights into warfighters' dependencies on space-enabled capabilities such as communications; positioning, navigation, timing; Imagery, and friendly-force tracking. The Warfighter Forum is one of several analytic events in the Chief of Staff of the Army's Unified Quest 2010 Campaign of Learning. During the event the support team collected observations and developed insights and recommendations that will feed USASMDC/ARSTRAT's Space Power Seminar Wargame on "Denied, Degraded, Disrupted Space Operations Environment" (Feb. 10) and the Army's Unified Quest 2010 Future Game (May 2010).

USASMDC/ARSTRAT's Warfighter Forum event was conducted Dec. 8-9, 2009 in Colorado Springs, Colo., to leverage the availability of combat units at nearby Fort Carson. The primary participants for the facilitated discussions were members of 4th Infantry Division and 10th Special Forces Group. Subject Matter Experts from the command and mission partner space organizations were invited to enhance our discussions. The two-day event provided valuable inputs and the established over-arching objectives were achieved. Based on our observations and how well the Warfighter Forum was received by participants, recommend USASMDC/ARSTRAT institutionalize the event by reaching out to other combat organizations across the Army to properly inform space concepts and capabilities and prepare the Army for the future.

The Forum focused on one of the Chief of Staff of the Army's Unified Quest 2010 key tasks: "Determine how to protect or mitigate the loss of space, cyber, and network-related capabilities." As the U.S. Army prepares to fight in a complex and uncertain future operating environment in a more decentralized manner we need to understand space dependencies and

vulnerabilities to assist the warfighter and identify how space-enabled capabilities need to evolve to improve support. The observations made and insights gained from the Warfighter Forum will contribute to the command's Denied, Degraded, Disrupted Space Operations Environment Seminar Wargame, follow-on Unified Quest 2010 wargaming events and ultimately to improve the ability of Army forces to plan and execute full-spectrum operations.

The outcome of this Warfighter Forum highlighted the critical value of assured access to Satellite Communications and Position, Navigation and Timing, to tactical operations. Equally important insight was gained regarding the growing need to train and educate Army leaders, at all levels, on the threats, vulnerabilities, and mitigation strategies necessary to continue operations in a degraded space and cyber operations environment.

## PURPOSE

This is the final report from the Warfighter Forum. Included are the forum context, the event objectives, consolidated insights, and recommendations.

## BACKGROUND

After participating in several U.S. Air Force and Joint space-oriented wargames that focused on strategic and national-level space policy issues, USASMDC/ARSTRAT recognized the need to conduct a Space Seminar Wargame oriented at operational and tactical levels and focused on identifying new concepts and capabilities that affect future land warfighters' access to critical space capabilities. In February 2009, USASMDC/ARSTRAT conducted its first Army space and cyber Seminar, an excursion event within Unified Quest 2009, to determine what space, high altitude, and cyber capabilities are required to enable Army and Joint Forces Commanders to dominate future operational environments. Key findings from last year's event included:

- **Assurance**

Assured communications, position and navigation, and intelligence, surveillance and reconnaissance must rely on a layered architecture of terrestrial, aerial, high altitude, and space-based systems.

- **Materiel Systems**

The capability of Army and joint force commanders to exploit space-based capabilities is limited by the availability of materiel systems that provide access to satellite systems

- **Network**

The effects of network degradation on operations are potential force vulnerabilities

- **Tiered Architecture**

A tiered architecture of space-based capabilities is required. Full-spectrum operations of the future will be no less reliant on space-based technologies than warfighters today depend on space; a layered architecture of space, high altitude, aerial, and terrestrial platforms can only strengthen access to command and control, position, navigation and timing, and Intelligence, surveillance and reconnaissance capabilities.

USASMDC/ARSTRAT will use the findings gained from last year's learning campaign events to inform the design and objectives of the Fiscal Year 2010 wargame activities. This includes using the insights and results of relevant efforts including the Space Force Mix Assessment, the Space and Network Assessment Capabilities-based Assessments, and the Tactical Space Protection Study. Early in planning for the Fiscal Year 2010 campaign, the team realized the value of conducting a straightforward event to gain inputs directly from warfighters with recent theater-of-war experience on the topic of tactical space dependency while operating in degraded space environments. The Warfighter Forum is designed to achieve that aim.

## METHODOLOGY FOR WARFIGHTER FORUM

1. For the development of Warfighter Forum objectives the team identified key tasks from Chief of Staff of the Army intent for 2010 Campaign of Learning. The primary task was, "Determine

how to protect or mitigate the loss of space, cyber, and network-related capabilities." From this primary task and others the wargames team developed three objectives that were oriented to maximize the wargame utility and the opportunity to gain recent and relevant warfighter experiences and insights.

- Understand the requirements for effective decentralized operations against hybrid threats in the emerging operational environment.
  - Evaluate Leader Development Strategy and refine our understanding of how to develop the knowledge, skills, and abilities that Army leaders require to accomplish future missions.
  - Based upon global trends and analysis of alternative futures, identify capabilities that will enable Army operations in the mid to long term.
2. Each day during the Warfighter Forum the predominant period of time was committed to discussions with tactical level warfighters. Day one was devoted to the 4th Infantry Division and day two to the 10th Special Forces Group. The seminar discussed the three objectives during the half-day sessions. Each session was led by facilitators who steered discussions to Army space-related objectives and their impacts on operations. During each session warfighters and Space Mission Area Experts discussed their recent operational experiences in addressing questions posed by facilitators. In addition a six-question survey was provided to the participants and was also used in developing the final insights and recommendations.

## PARTICIPANTS

Participants from the 4th Infantry Division and 10th Special Forces Group staffs as well as Subject Matter Experts with specific joint and Army space backgrounds attended the Warfighter Forum. Analysis focused on responses from 4th Infantry Division and 10th Special Forces warfighters; Subject Matter Experts enhanced discussions related to primary objectives and study questions. Participant lists are available upon request.

## INSIGHTS AND RECOMMENDATIONS

**OBJECTIVE 1** Understand how space-enabled capabilities support decentralized operations against hybrid threats in the current and future operational environment.



Sandra Yanna of the Future Warfare Center Battle Lab fields a question from a conference attendee.

**Insight 1.** Assured communications and positioning, navigation, and timing are the Space Force Enhancement capabilities that tactical warfighters depend on most—predominantly to execute the warfighting functions of command and control, maneuver, and fires. Signals intelligence was highlighted as a capability area of increasing utility to planning and conducting tactical operations.

**Discussion.** To effectively operate in a decentralized environment, warfighters require beyond-line-of-sight communications and positioning, navigation and timing. Users require satellite communications as a means to have uninterrupted, on-the-move communications in all environments as well as securing access to valuable reach-back products and services. Space can provide beyond-line-of-sight and over-the-horizon communications that facilitate command and control, provide reach-back to organizations (even while on the move), enhance targeting (especially with signals intelligence and situational awareness) and receive appropriate authorizations for execution of operations. Regarding positioning, navigation and timing capabilities, the warfighter must have systems timing and a required level of situational awareness for maneuver and command and control of forces. In addition, positioning, navigation and timing capabilities provided by space-based GPS enables integrated and responsive precision guided fires to protect friendly and defeat enemy forces.

**Recommendation.** USASMD/ARSTRAT use this finding to inform the Space Capabilities Based Assessment (in progress)

and support force mix assessments to identify communications requirements from terrestrial to space domains. This information should also be used to prioritize work on tactics, techniques and procedures that, when developed, will support operations in degraded space and cyber environments. Finally, this information should be shared with the Army Signal Center for work on Aerial Layer initiatives.

**Insight 2.** Use of a “P.A.C.E.” (Primary, Alternate, Contingency, and Emergency) framework is an effective way to mitigate the degradation or loss of system/device capabilities in a high tempo tactical environment.

**Discussion.** Successful mission operations frequently hinges on the effective employment of systems and equipment that support the elements of combat power. Too often missions are terminated or unacceptable losses are suffered as a result of single points of failure or an over-dependence on equipment or systems. During the Warfighter Forum a “P.A.C.E.” approach to mission planning, training and execution was suggested as a proven way to mitigate equipment or system loss or degradation. When fully incorporated this tactic, technique and procedure accommodates operational adaptability and avoids single point failure scenarios. This approach can be especially effective in dealing with the most prominent threats (e.g., environmental interference, blue-on-blue fratricide, equipment problems) which are non-hostile in nature.

**Recommendation.** USASMD/ARSTRAT advocate the Army adopts the P.A.C.E. model in leader development and training. The P.A.C.E. model is a way to identify single points of failure and continue to operate in degraded environments. Incorporate this lesson in developing degraded space and cyber tactics, techniques and procedures. USASMD/ARSTRAT should work with U.S. Training and Doctrine Command to ensure that the P.A.C.E. concept is also integrated into doctrine. Ensure P.A.C.E. becomes part of the mandatory instruction for Army Space and Cyber Operations Officers and integrate into career-field training.

**Insight 3.** Forces are generally unaware of enemy threats to space-based systems but are becoming more aware of blue on blue electro-magnetic interference and impacts.

**Discussion.** There were very few examples of enemy threats to space-based capabilities presented during the forum. Representatives stated that during recent deployments they did not encounter any intentional threats against their systems.



A conference attendee gets animated while discussing warfighter issues.

However, they are becoming more aware of the blue-on-blue unintentional interference on communications systems and subsequent impacts to operations. Some participants also indicated a concern for effective Foreign Intelligence Services monitoring and collecting data on friendly operations and tactics, techniques and procedures.

**Recommendation.** The assignment of frequency managers at division level has become a significant resource concern. Divisions should ensure they have trained frequency managers who are capable of deconfliction. The frequency manager needs to be assigned to a division prior to deployment and must participate in the unit's Mission Rehearsal Exercise. The Division Force Protection and SSE need to remind users to follow established tactics, techniques and procedures and be cognizant of FIS presence.

**Insight 4.** The established space-based operational environment currently in theater will degrade as Army general purpose forces transition out of theater, putting remaining Army and joint forces at risk, especially Special Operations Forces who have become reliant on more robust, mature space-based capabilities.

**Discussion.** As Army general purpose forces transition (down-size) the operational risk to remaining forces (e.g., SOF) is increased due to diminished space infrastructure and capabilities. Special Operations Forces and remaining forces usually rely on established networks and intelligence, surveillance and reconnaissance functions to assist deliberate planning and mission execution; and when Security Force Assistance efforts expand, their requirements for space-enabled capabilities will likely increase. Meanwhile, as Brigade Combat Teams and higher-level units transition from host nations, they will take their resources with them, including space-enabled assets, along with communications and intelligence processes. This situation puts remaining U.S. forces at risk of mission failure.

**Recommendation.** USASMDC/ARSTRAT work with U.S. Strategic Command and Special Operations Command to develop exit strategies and identify options for augmentation for communications, intelligence, surveillance and reconnaissance, and Special Technical Operations for Special Operations Force. Recommend that the Space Operations Officers Qualification Course train FA40s to conduct operational risk assessments. As Army Divisions transition the Space Support Element teams will conduct the risk assessment to minimize leaving behind a degraded space force enhancement environment.

**Insight 5.** Space Force Enhancement support requirements for tactical echelons operating under decentralized conditions must be informed by organizational, knowledge management, and risk assessments.

**Discussion.** Generally, the group felt that the number of established and emerging capabilities, mostly intelligence capabilities, delivered and integrated at Brigade Combat Team and below, exceeded current analyst manpower and operational capacity. The result of pushing more space-enabled intelligence capabilities than tactical echelons are manned and equipped to absorb results in information overload, lack of thorough analysis, and inefficient use of space-enabled capabilities. Further complicating tactical intelligence support during decentralized operations is the collection management process which is overly bureaucratic, inflexible, and unresponsive to urgent and dynamic tactical requirements.

**Recommendation.** Using the brigade organizational template, USASMDC/ARSTRAT in concert with the Signal and Intelligence centers, examine the space-enabled capabilities most suitable for use and exploitation at tactical-unit levels. The resultant assessment should be used to inform appropriate U.S. Training and Doctrine Command Centers of Excellence and the Army space operations community efforts in equipping and designing force structure.

Forces are generally unaware of enemy threats to space-based systems but are becoming more aware of blue on blue electro-magnetic interference and impacts.

**Insight 6.** Too often units are training to a “Same Mission and Environment” scenario for follow-on deployments, resulting in limited opportunities to train with a less robust infrastructure or in degraded environments. Units are not training for a degraded operational environment in their continental United States pre-deployment events.

**Discussion.** Leaders from units that participated in the Warfighter Forum indicated they do not receive sufficient space capabilities while training in the continental United States. The training conducted is focused on the communications networks that are established in theater and there is little or no exposure to training with a less robust infrastructure or for operations in degraded environments. This approach to pre-deployment training does not account for unanticipated changes in the environment, nor does it emphasize or integrate “operational adaptability,” the foundation of the Army’s Future Force Capstone Concept.

**Recommendation.** USASMDC/ARSTRAT Future Warfare Center aggressively solicit ideas from Space Operations Officers and mission partners and use these inputs to develop vignettes/modules that support operational adaptability and training for degraded space and cyber environments. Dissemination of these vignettes and training ideas should be shared via web-based sites so lessons learned can be more readily developed to advance training programs and shared across the force.

**Insight 7.** Space Force Enhancement capabilities and support to Special Operating Forces in the continental United States are inadequate.

**Discussion.** Special Operations Forces in the continental United States do not have access to space-enabled capabilities while training and resetting there. The only time these forces have access to and employ space-enabled capabilities is during deployments abroad. This shortfall inhibits sharpening and

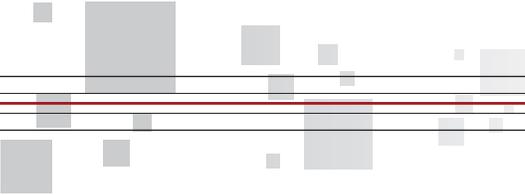
maintenance of skills, slows new tactics, techniques and procedures development and testing, and dilutes training environments and opportunities. Although anecdotal, the fact that 10th Special Forces Group did not have dedicated Satellite Communications access during a real-world (and recent) helicopter recovery mission, lost several valuable hours trying to coordinate for Satellite Communications support, and had to eventually piggy-back off of 4th Infantry Division Satellite Communications support in order to conduct search and recovery mission in the Pike National Forest demonstrates the impact of this deficiency.

**Recommendation.** USASMDC/ARSTRAT, through U.S. Strategic Command, partner with and advocate for U.S. Special Operations Command space-enabled training requirements regardless of force location.

**OBJECTIVE 2** Better understand leader knowledge of space-enabled dependencies and vulnerabilities; recommend ways to improve Army leader development strategies.

**Insight 1.** A greater degree of specialized space training for combat arms leaders is not necessary; leveraging and uniting organic and external subject matter experts is a suitable way to ensure Army leaders understand and account for space dependencies, vulnerabilities and mitigation measures.

**Discussion.** Most participants felt that a better understanding of space dependencies and vulnerabilities could be achieved without additional specific educational courses and training for Army leaders. Effectively employing personnel with the requisite space skills and education and integrated space operations are effective ways to ensure combat arms leaders are equipped to deal with uncertain and complex environments, including



contested space. This becomes very important at the Brigade Combat Team level when they do not deploy with their parent headquarters. Brigade Combat Team leaderships need to be aware of resident space professionals and space force enhancement capabilities. It was evident that Special Forces units and leaders have demonstrated the success of this approach; individual specialized skills have been inculcated and have resulted in effectively integrating specialized space systems and capabilities to support mission accomplishment.

**Recommendations.** 1. Space Support Elements at division need to execute an engagement plan with Brigade Combat Teams to provide space training on capabilities and tactics, techniques and procedures to ensure space is integrated into tactical level operations. 2. Recommend USASMDC/ARSTRAT leadership monitor efforts to get FA40s to all the Special Forces Groups and the potential integration of Air Force Space Officers into division. These individuals will assist with space integration and planning but also ensure units receive recurring training on space capabilities.

**OBJECTIVE 3** Identify space-enabled capabilities that can enable Army operations in the mid to long term.

**Insight 1.** Warfighters should strive for functional solutions to bandwidth problems that include user discipline and the ability to manage large data sets more effectively.

**Discussion.** The need for greater space-enabled communications bandwidth is an existing gap and will remain a gap for years to come. Technological advances may very well increase bandwidth capacities. At the same time, however, we should expect the demand for greater bandwidth will also increase. Since there is no end in sight for this capability gap, warfighters should not rely only on future technologies to fill the gap. Instead warfighters need to understand this problem and use demonstrated and available solutions to overcome overburdened bandwidth. User discipline (use only the necessary bandwidth for essential needs), management of the electromagnetic spectrum and use of proven Large Data dissemination solutions should help alleviate bandwidth stress.

**Recommendation.** USASMDC/ARSTRAT continue to work closely with 4th Infantry Division, 10th Special Forces Group, and other warfighting units to emphasize user discipline and introduce them to products and services such as the “Large

Data” Joint Capability Technology Demonstration which is currently being led by U.S. Strategic Command. USASMDC/ARSTRAT advocates that U.S. Training and Doctrine Command and U.S. Army Signal Center continue to identify solutions for the compression and prioritization of data.

**Insight 2.** Warfighters frustrated by degraded space-enabled ground systems often turn to flawed tactics, techniques and procedures/workarounds during the fog and friction of tactical warfare, often leading to negative conditioning and repetitions of system failure.

**Discussion.** Warfighters reported that, frequently, when space-enabled capabilities are denied, degraded, or disrupted, they often applied “quick fixes” or discontinued use of systems altogether without really understanding the source of degradation. This practice leads to negative conditioning—habitually employing imperfect tactics, techniques and procedures/standard operating procedures—in operating environments where characterization and identification of system interference could actually lead to more efficient operational environments and mission success. Space enabled ground systems that could self-detect, characterize, and report interference would alert the user to interference more quickly, lead to better situational awareness, and would block flawed work-around procedures.

**Recommendation.** Future space-enabled ground systems should be developed as “smart” systems that are able to self-detect, characterize, and report system degradation and interference. Future Warfare Center should work closely with appropriate U.S. Training and Doctrine Command Capabilities, Development Integration Directorate, the Space and Missile Defense Command Technical Center, and other organizations to help modify current space-ground systems and develop smarter future systems. The Space and Missile Defense Battle Lab should include this finding into future Capability-Based Assessments and subsequent Army Space acquisition processes.

## SUMMARY

USASMDC/ARSTRAT’s Warfighter Forum was a successful event that provided valuable insights in supporting Army efforts to determine how to better understand the future operational environment, prepare leaders and protect or mitigate the loss of space, cyber, and network-related capabilities. The superb support provided by 4th Infantry Division and 10th Special Forces Group leaders enabled the command’s Future Warfare Center Wargames Division to obtain tactical level warfighter inputs based on recent Operation Iraqi and Operation Enduring Freedom experiences. Insights from this event will inform two

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key future wargame activities: USASMDC/ARSTRAT's Space Power Seminar (Feb. 2010) and the Army Unified Quest Future Game (May 2010).

In addition to satisfying the wargame objectives, added benefits were derived in identifying leader development needs and bridging the gap between operating forces and generating forces. This brief event has already led to useful partnership initiatives that are underway to leverage responsive development support and space mission area expertise.

Direct warfighter participation and simple design for the Warfighter Forum demonstrated real value with negligible time and cost impacts. Pursuing similar models for future wargame activities will contribute to needed engagements between the concept-capabilities development and experimentation communities and warfighters and will better prepare the Army for an uncertain and complex future.

## FOR FURTHER EXAMINATION

**Additional Discussion.** We deleted a section from Objective 1, Insight 1 Discussion narrative that contrasted the feedback gained from last year's Space Power Seminar Wargame and our Warfighter Forum on the "most vital" space-enabled capabilities (satellite communication and positioning, navigation and timing more vital than satellite communication and intelligence, surveillance and reconnaissance). We did so because 1) we felt we had taken the analysis too far and had inferred too much, and 2) we needed to economize the narrative. This is, however, a data point worth noting and exploring in the future. The deleted section read:

This insight reflects a noticeable difference from last year's [seminar] wargame assessment that concluded communications and intelligence, surveillance and reconnaissance were the most vital space enabled capabilities. This is most likely due to assessing this question at the tactical level of war where tactical warfighters have increasing access to satellite communications and Global positioning system, [space-enabled systems] integrated into virtually all tactical systems. [There remains, however,] shortfalls in delivering responsive and on-the-move access to space-based ISR.

Recommend we revisit the comparison-contrast and users' differing priorities of space-enabled capabilities at a future time. This could become a sub-question of Objective 3, Mitigation Strategies, for the Denied, Degraded, Disrupted Space Operations Environment Seminar Wargame, and we will consider this data point an option within the Data Collection and Analysis Plan.

## Deferred Insight from Objective 1

The following insight was removed from Objective 1. We determined that we did not gather enough data from the Warfighter Forum to include in the final document. However, this is a major concern that resonates in all theaters--from training exercises to combat operations. We elected to consider this insight as a topic to include in our Denied, Degraded, Disrupted Space Operations Environment wargame.

**Insight.** Deploying units need to plan for the space-based effects and potential capabilities that they need to leave behind as they conduct transition of authority to host nations.

**Discussion.** U.S. Army Forces are currently training indigenous forces to be self-reliant and proficient with mission planning and targeting. As units begin to transition out they need to leave behind equipment that aided in the military planning process. However, access to and proficiency in space-enabled capabilities, data sharing, and data-sharing processes left behind to Host Nation Forces is a concern to warfighters. Most of the data shared with coalition partners and Host Nation Forces is unclassified and is normally received from commercial sources. When Host Nations are provided systems and training, their ability to use and maintain these capabilities diminishes because of technical challenges, maintenance issues (lack of funding), and no continuity training.

**Recommendation.** USASMDC/ARSTRAT work with U.S. Strategic Command and Air Force Space Command to resolve "release-ability" limitations when providing intelligence products to our coalition partners. Units deployed during stability operations need to develop long-term training plans for Host Nations Units and determine what realistic capabilities that can be left behind. 

# BUILDING

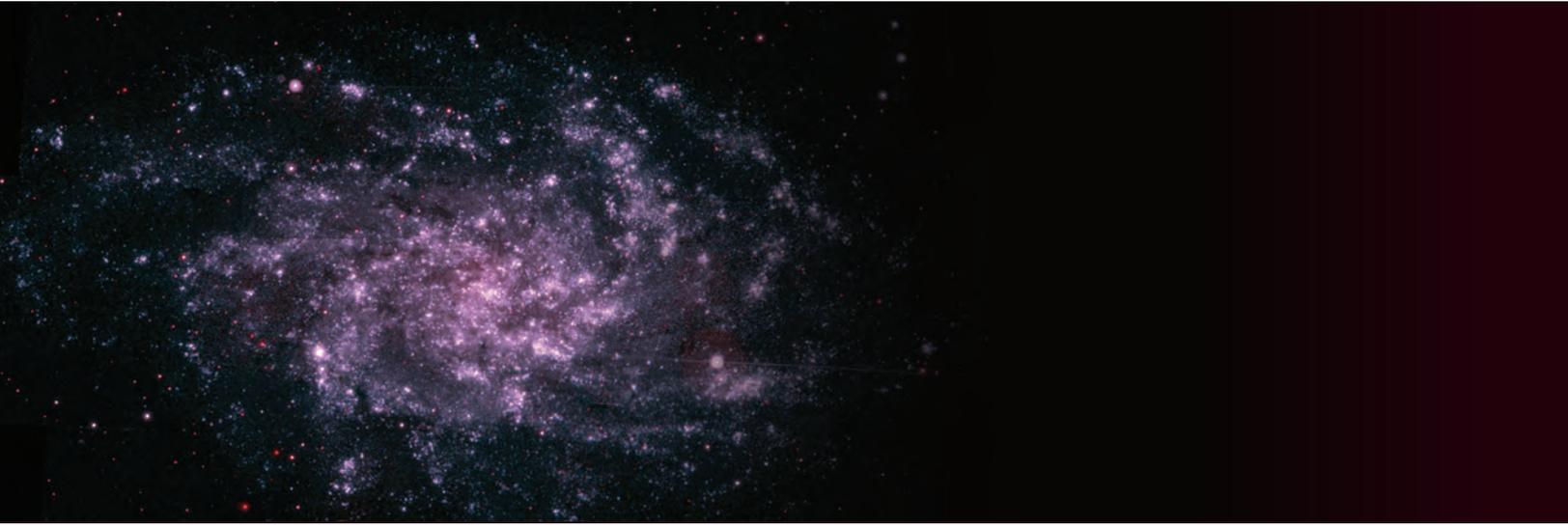
## a United States Space Force

■ BY: MAJ WILLIAM S. MONCRIEF



The time has come for the United States to build a Space Force. A Space Force is not a new concept and has been proposed many times in the past. Elected officials like U.S. Senator Bob Smith and members of the Space Commission brought up the idea of creating a U.S. Space Force. (McConnell, May 20, 2001). What exactly do I mean when I say create a Space Force? Am I proposing a group of space fighter pilots, as we see in the movies that travel around establishing bases on other planets? Alternatively, am I talking about an organization specifically dedicated to protecting U.S. space interest? In short the answer to both is, yes! Before you file this paper with your science fiction section, there are a few quantifiers we need to cover along with a few treaties we need to explore. In this article, I will cover the following: The reasons for the U.S. Space Force; the legal constraints on such a force to include the ways around them; and why the U.S. Space Force needs to be separate from the other services in order to meet the objectives of true space superiority. In order to examine these topics, we must look at the Outer Space Treaty and its limitations on establishing a moon base, maneuvering military vessels in space, and what types of weapons can be used in space. We also need to look at what the service priorities are and how they affect satellite acquisition.

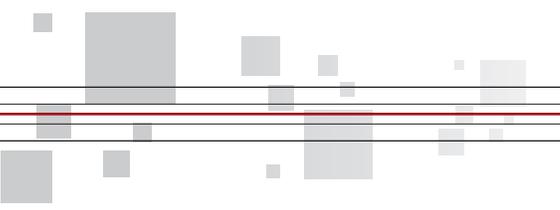
To understand the need for a U.S. Space Force we must begin by looking back in time at the need for countries to control their shipping lanes from piracy in the late 1700s. We then need to see how this compares with insuring freedom of maneuver in space today. In the late 1600s and early 1700s, shipping lanes between countries were plagued by piracy. This was especially costly to the major powers of the day because their ability to control the seas fueled their empires. The seas were used to transport gold and other valuables to pay for the costly expansion of their empires. For pirates, this was a very lucrative ven-



ture. For a small investment, pirates could plunder on countries' ships under contract from another. This became a proxy fight and gave the third party countries plausible deniability. Pirates would also plunder for themselves. As the effects of piracy started to hurt the economy of an empire, it was forced to take action. Soon nations had to use their navy to protect their merchant ships and patrol their shipping lanes. This meant they had fewer combat vessels supporting the expansion of their empires. Eventually the pirates were defeated, as they were no match for the military fleets of the world. Unfortunately, countless riches were lost before the nation's militaries engaged these acts of piracy. Due to the lack of planning, empire expansion slowed and in some cases contracted. Early leaders failed to see the necessity of ensuring the freedom of maneuver within the shipping lanes. They were under the false assumption that no one would dare attack our ships; sound familiar. Today we know that security is one of the essential elements in all forms of maneuver. (FM 7-8, 1992) Security is even one of the five principles of patrolling. (SH 21-76, 2000) So, how does all this apply to space? Space is becoming more profitable for private business every day. Through the rise of consortiums and the use of foreign launch services, access to space is getting cheaper. Now, with the onset of Burt Rattan and Richard Branson's organization, Virgin Galactic commercial space tourism may soon be a reality. In addition, the United States stated position is we will eventually return to the moon and establish a lunar base. If this base remains in operation, it will need re-supplying. Because of this, it is logical to assume this job will eventually be contracted out just as we contract ship movements on the seas. As private business sees the potential to make a profit, they will

move to compete for these lucrative contracts. This model will resemble the use of merchant marines and other private companies that transport our supplies and equipment by sea and rail. This may start by contracting out the continual re-supply of the International Space Station, while the U.S. and its international partners focus on the moon. Eventually as the private companies develop the technology to reach the moon they will in all likelihood take over that mission. This would free up the United States and its partners to push further out into space.

In the near future, money, information, valuable supplies, and equipment will transition through space, and just like in the 1700s, they will need to be protected. Some of these resources will be aboard transports or in the satellite network. In fact, money and information are already being moved through our satellite network. The security of the data stream could be easily compromised if someone disrupts the network or intercepts the signal from orbit using either a manned or an Unmanned Space Vehicle. Today the on orbit interception is a very low threat due to the limited number of space faring nations; however, this will change. As for valuable supplies and equipment, they are most vulnerable from on orbit systems. What happens when we discover and learn how to exploit natural resources on the moon and other planets, like helium three? Once we start transporting these extremely valuable resources back to earth, they become high value targets for those who want it, or who do not want us to have it. The protection of our satellite network falls into not only the protection of our equipment but also the protection of a Space force. Let's say a hostile nation wants to conduct a close up inspection of one of our satellites; how do we stop them. What if their intentions are more serious?



What if they want to move, steal or destroy our systems? We need to have someone in the Area of Operations in order to stop these types of actions. A manned spacecraft or an Unmanned Space Vehicle can do this type of interdiction. Without this capability and a dedicated organization to use it, we cannot properly defend our satellite network, from all likely attacks. The possibility of a ground intercept is a higher threat.

Looking at the Outer Space Treaty that the United States ratified, there are certain constraints on establishing a conventional Space force. A military Space force must be allowed to conduct “Full Spectrum Operations.” They must be free to conduct Offensive, Defensive, Stability and Civil Support Operations. Embedded in these are some sub-elements we will focus on (maneuver, and prepared defensive positions, or fortifications), but for this paper we will only discuss Offensive and Defensive operations. (FM 3-0, 2008)

Offensive space operations are critical to ensuring freedom of maneuver in space. These operations can be in reaction to hostilities or in a preemptive maneuver as a spoiling attack or simple patrolling. Conducting offensive space operations carries with it some legal trip wires. First is the ability to maneuver forces. According to the Outer Space Treaty, Article IV, “... the conduct of military maneuvers on celestial bodies shall be forbidden.” (Outer Space Treaty, 1967) The question is how does the world community define maneuver? Most would think this is a straight forward concept, but it isn’t. For example if a country uses a strict definition to define maneuver as the movement of military personnel and equipment within an area of operations, then we conduct maneuvers in space all the time. Many of our Apollo astronauts were military and what if we put a Department of Defense satellite in orbit around the moon and continually move it? Is that conducting military maneuvers? If so, we have violated the treaty. Another interpretation of military maneuvers could be conducting a military exercise. This is sometimes called conducting maneuvers. The problem with this is we did conduct military exercises on the moon. During our visit to the moon, we had military men conducting Reconnaissance. Although they were working in a “civilian capacity,” for scientific investigation, Reconnaissance is a form of combat patrol. This was a thin line we walked and the Soviets were planning to walk the same thin line. Could this have been a violation? Our definition of maneuver is “the employment of forces in the operational area through movement in combination with fires to achieve a position of advantage in respect to the enemy in order to accomplish the mission.” (FM 3-0 Operations, 2008) If we use our definition, we have not violated

it. The problem is most treaties have a section that defines what words will mean in the treaty. The Outer Space treaty does not have this, and I believe that was intentional. Some would say that this part of the Outer Space Treaty was referring to the marshalling of military troops on the moon in preparation for an attack on earth. Based on the political environment of the day, this is the most likely intent of the “no military maneuver” part of the treaty. The biggest misconception about the Outer Space Treaty is that it forbids placing weapons in space. This is definitely not true. Article IV of the Outer Space Treaty (1967) says, “States Parties to the Treaty undertake not to place in orbit around the earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any manner.” Some people would look at this portion of the Outer Space Treaty and conclude they were concerned about a space nuclear war. The real concern is of placing nuclear launch platforms in space to be used on enemy states on earth. This type of action could render the Mutually Assured Destruction doctrine useless. This would allow virtually undetected nuclear missile launches from space. The only problem with this article is that Intercontinental Ballistic Missiles are “objects carrying nuclear weapons” Outer Space Treaty (1967) and they transition through space.

Just like Offensive Operations, being able to conduct Defensive Operations is critical to a military force; the same can be said for a space force. So, how do we conduct defensive operations in space? According to U.S. Army (FM 3-0, 2008), there are three types of Defensive Operations: Mobile, Area and Retrograde. Embedded in all these are the use of some fortification. What would this look like in space? The most common form of fortification is a base camp. The most practical place for such a base would be the moon. Unfortunately, there is a problem with that. According to Article IV of the Outer Space Treaty of 1967, “The Moon and other celestial bodies shall be used by all State Parties to the Treaty exclusively for peaceful purposes. The establishment of military bases, installations and fortifications, the testing of any type of weapons and the conduct of military maneuvers on celestial bodies shall be forbidden.” (Outer Space Treaty, 1967) If you take this at face value, it means you cannot establish a base anywhere but on Earth. If this is the case, we need to withdraw from the Outer Space Treaty like we did the Anti-Ballistic Missile Treaty. Before we give up on our ability to secure the “space lanes” or before we pull out of the Outer Space Treaty, which could send a wrong message, let’s look at our options. The treaty clearly

states, "... military bases, installations and fortifications ..." (Outer Space Treaty, 1967) However, there are no restrictions for civilian bases, installations, or fortifications on the Moon. Also, according to Article IV of the Outer Space Treaty of 1967, "The use of military personnel for scientific research or for any other peaceful purpose shall not be prohibited. The use of any equipment or facility necessary for the peaceful exploration of the moon and other celestial bodies shall also not be prohibited." As you can see, there is no restriction on stationing military personnel on the moon for peaceful purposes. Peaceful purposes could be defined as non-offensive. So what is the fix? How can we station a Space force on the moon? We establish a U.S. Government research facility on the moon. A civilian commands the base and a military officer commands the personnel. Think of the civilian commander as the garrison commander with a little more power. This type of base could also be armed, for defensive purposes and would have the capability to resupply military ships patrolling the area. Such a station could act as a signal collection base. We could use it to gather signal intelligence on countries here on earth. The only limitation for weapons on the moon is testing. Weapons testing is not allowed under the treaty.

So, why is a separate Space Force the way to go? Isn't someone conducting the space operation mission now? Why not just create one military force? These are all good questions and most likely the same ones the Space Commission asked when the topic came up. To best answer, these questions we have to look at the nature of the military.

### Who is conducting the space operation mission?

As it currently stands, the executive agent for space in the United States military is the Air Force. However, all U.S. services are involved in space and space operations. All services are end users of space, the Army being the largest one. The service with the principal amount of space professionals is the Air Force followed by the Army and its Functional Area 40 Space Operations Officers. Both the Air Force and Army conduct offensive and

defensive space. However, the Air Force is the only force that builds satellites and launches them. This sounds good on paper because currently the other services have their hands full with the current wars in Iraq and Afghanistan. So, if this is a mutually beneficial relationship, why change? Well that is easy. It's not a mutually beneficial relationship. As the executive agent for space, the Air Force gets a whole lot of money because satellites cost a lot of money. The problem is the Army is stuck with whatever the Air Force develops. It is true that we request

certain requirements, but when the tradeoffs occur we do not have the Acquisition people trained in Army space operations there; this is due to the current operation tempo. So, how would this be different with another agency building the satellites? That is also an easy question; the Air Force has its own priorities, as it should. Therefore, if the Army asks for an imager with a sub meter resolution to identify ground vehicles, without a Liaison Officer following every step of the development, they may find

**So, why is  
a separate  
space force  
the way  
to go?**

the satellite they get is not what they need. In our current example, if the resolution is traded off for other capabilities the Army still gets its imager but it is not what they need. The Air Force, on the other hand, could use it for missile and air-field identification. As a note, the Army is currently planning to develop and deploy its own Micro-SATs. The Air Force is the executive agent for space but it lags behind the Army in the area of offensive space. If you look at the Army policy for Space Force application mission area it says, "This mission area encompasses combat operations in, from, and through space to influence the course and outcome of conflict." (FM 3-14, 2005a) Notice how it talks about combat operations in space. In the realm of offensive capabilities the Army has taken a major role in the area of exploitation and negation. FM 3-14 says this about exploitation, "space dominance and the full exploitation of space systems are vital to achieving the precision, information, superiority, and battle command capabilities essential for executing the responsive, full spectrum ..." (FM 3-14, 2005b) But what is exploitation? According to FM 3-14 an example



of exploitation is, “Team members provide detailed, tailored exploitation of spectral and radar data in support of operations.” (FM 3-14, 2005c) So, what is negation? Negation is a subcomponent of Space Control.

According to FM 3-14, “Space Control Operations ensure freedom of action in space for the U.S. and its allies and when directed, deny an adversary freedom of action in space. Space control involves five interrelated objectives: Surveillance of space to be aware of the presence of space assets and understand real-time satellite mission operations. Protect U.S. and Friendly space systems from hostile actions. Prevent unauthorized access to, and exploitation of space systems. Negate hostile space systems that place U.S. interests at risk. Directly support battle management, command, control, communications, and intelligence.” If you notice the underlined parts you see they are a major part of true space superiority. However, the Army can’t do every part of space superiority. All the services rely on systems already on orbit or on the Air Force to put new ones up. You can already see that each force, as they are now structured does not do it all. I would further say any one of the current forces cannot do it all because of more urgent priorities. The Air Force is focusing on air superiority, the Army and Marine Corps are focusing on the ground fight, and the Navy is focused on sea power. If you put the mission of true space superiority on any of the existing forces, one of two things would happen: one, the job would be substandard as it is now, or two, their main mission would suffer.

## Why a Separate Space Force?

If all the services are conducting different parts of the space operations mission, why is it not working to achieve true space superiority? The answer is simple. As mentioned before every service has its own priorities and it is difficult to get them to agree on anything, much less something as complicated as space superiority. The Space Commission made two recommendations on this subject: Create a Space Corps within the Air Force or create a Military Department for Space. According to the executive summary of the Space Commission Report (2001), “The Department of Defense requires space systems that can be employed in independent operations or in support of air, land and sea forces to deter and defend against hostile actions directed at the interest of the United States. In the mid-term,

a Space Corps within the Air Force may be appropriate to meet this requirement; in the long-term scenario it may be met by a military department for space. In the near-term, a realigned restructured Air Force is best suited to organize, train and equip Space forces.” This was not an either or concept; the commission understood you need to create a separate Space force. This would allow an organization to be specifically dedicated to all U.S. space assets. This would include all aspects of Offensive and Defensive space as well as the acquisition of new systems for all the other services. This would take all the services’ bias out of the equation and the other services would get a better product. Do not be misled; you would still need service specific Liaison Officers to ensure proper systems are acquired. I understand the first question on everybody’s mind. Why not just do this now, with the Air Force, and forget a Space Force. I agree we should do it now, but you would have the other problem of stretching the Air Force too thin.

With all the talk these days about joint operations, why not just create one combat force and roll space into it? Wouldn’t this take care of the institutional bias? It might, but there is a problem with that; it’s called the United States Constitution. The U.S. Constitution says in Article I Section 8 “The president shall be the commander-in chief of the army and navy of the United States.” And that congress shall have the power “... To raise and support armies ... To provide and maintain a navy ... (U.S. Constitution, 1776).” So, you see we can’t just scrap a service without amending the U.S. Constitution.

As you can see this issue has become quite the dilemma and could become a serious problem in the future. What happens if we are not prepared to meet a possible aggressor in space? What if China or North Korea, who have not ratified the Outer Space Treaty, decide to exert their power in space and attempt to gain a foothold in order to control our access to space? What if China or North Korea decides to place a nuclear weapon in space? What if they try to establish a foothold on the moon in order to prevent the United States from going there? If we are not ready to meet these kinds of challenges, we may find ourselves in a full scale war trying to reclaim the high ground. We are not and cannot exercise true space superiority as currently structured; therefore, a United States Space Force is necessary.



# FROM IRAQ



Soldiers and Airmen met this January for a conference in the Al Faw Palace, Baghdad, Iraq. Army Space Officers are applying their skills acquired through the Space Operations Officer Qualification Course, professional space experience, and previous assignments to multiple high-profile programs supporting space; the counter improvised explosive device fight, and Information Operations. Their skills are in high-demand due to their knowledge of technical systems and their abilities to apply technology to an ever-changing environment in Iraq. All of United States Forces - Iraq's Major Subordinate Commands and Task Force Troy (Counter IED Task Force) were represented at the conference that brought together the largest group of Army Space Professionals ever assembled in Iraq.

#### STANDING FROM LEFT TO RIGHT:

SGT Jarrod Miller; MAJ Sergio Gonzales; MAJ Timothy Haynie; MAJ Steven Moseley; MAJ Cecil Strickland; MAJ Paul Freeman; MAJ Siegfried Ullrich; MAJ Rodger Pitt; MAJ Matthew Greenwood; MAJ John Stone  
Kneeling from left to right: MAJ Mindy Kimball; LTC Travis Voels; MAJ Alex Braszko.

# FULL SPECTRUM OPERATIONS

## Mission Essential Task List

■ BY: MARK JAMES

• BIO

**Mark James**

Mark James supports USASMDC's two brigades as a Training Developer contractor for the FWC-DCD Collective Training Branch He is a retired Army Field Artillery LTC with over twenty-five years of service. In his last active duty assignment, he commanded a Field Artillery Training Support Battalion, followed by an Air Defense Training Support Battalion for First Army's 3rd Brigade, 87th Division (TS) at Camp Shelby, Miss.

In July 2009, the Chief of Staff of the Army decided to have the Army change from a Core Mission Essential Task List and a Directed Mission Essential Task List to one Full Spectrum Operations Mission Essential Task List (FSO METL). The FSO METL applies to Army units of brigade size and larger. The core METL function is full spectrum operations – offense, defense, stability/civil support – not major combat operations. Units will have only one METL, and units will train to only one METL at a time. Having two METLs, the Core and Directed Mission Essential Task Lists, was confusing for both Soldiers and commanders. If units are employed in a role outside of their designed purpose, then they will retain their FSO METL, and add appropriate “out of design” mission essential tasks (METs) in order to accomplish what the previous Directed METL was used for. The Chief of Staff of the Army wants units to do a few tasks very well rather than checking the blocks on a “laundry list.”

The Army's executive agent for establishing and maintaining FSO METL is U.S. Army Training and Doctrine Command. The Command's Combined Arms Center, and specifically the Center's Collective Training Directorate, located at Fort Leavenworth, Kan., runs the Army METL Review Board twice a year in order to execute this process. The Review Board consists of seventeen voting members, Commands that own brigade sized units and higher that utilize FSO METL, and twenty non-voting members, primarily U.S. Army Training

## Proposed Space Brigade FSO METL

- Provide Space Support (ART 5.6.3)
  - Conduct Network and Payload Control
  - Operate Satellite Control Facility Support Equipment
  - ~~Maintain Satellite Control Facility Support Equipment~~
- Provide Space Control (ART 5.6.2)
  - Provide Space Situational Awareness (ART 5.6.4)
- Provide Space Force Enhancement (ART 5.6.1)
  - Integrate Space Capabilities (ART 5.1.1.5)
  - Synchronize Space Operations
  - Provide Theater Ballistic Missile Warning Support (ART 5.6.1.5)
- Conduct Command and Control (ART 5.0)
  - Execute the Operations Process (ART 5.1)



United States Army Combined Arms Center makes these recommendations for the FSO METL of each Brigade. Deletions are signified by the red strike through and additions are highlighted.

## Proposed Missile Defense (GMD) Brigade FSO METL

- Conduct Ballistic Missile Defense (ART 6.1.6)
  - Conduct Active Missile Defense Operations
  - Perform Asset Management
- Conduct Critical Installations and Facilities Security (ART 6.5.2)
  - **Conduct Critical Installations and Facilities Security (ART 6.5.2)**
- Conduct Command and Control (ART 5.0)
  - Execute the Operations Process (ART 5.1.1)

and Doctrine Command school houses that provide an advisory role. Once issues have been approved by the Army METL Review Board, they will be forwarded to the Home Station/Deployed Council of Colonels for review and vetting. The vetted Army METL Review Board results are then forwarded through the Commanding General, Combined Arms Center, the Commanding General, U.S. Training and Doctrine Command, and the Training General Officer Steering Committee to the Department of Army G3/5/7 for final approval and publication.

U.S. Army Space and Missile Defense Command is a voting member since the 1st Space Brigade and the 100th Missile Defense Brigade (Ground-based Midcourse Defense) are commands that use FSO METLs. The U.S. Army Space and Missile Defense Command/Army Forces Strategic Command's G-3 Training, Readiness, and Exercises (TRES) Director is their voting member. Since U.S. Army Training and Doctrine Command is the Army's executive agent for FSO METL, the U.S. Army Space and Missile Defense Command Directorate of Combat Development and specifically, its Collective Training Branch runs this process for the command. As a part of this process, the Directorate for Combat Development's Collective Training Branch conducts all coordination with and submits all of U.S. Army Space and Missile Defense Command's issues and FSO METL products to U.S. Army Training and Doctrine

Command's Collective Training Directorate, Combined Arms Center. The Directorate for Combat Development coordinates with the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command's G-3 TRES to ensure that all of the FSO METLs are approved through operational channels and that, specifically, the 1st Space Brigade and the 100th Missile Defense Brigade (GMD) FSO METLs are approved through appropriate command channels. The Directorate of Combat Development's Collective Training Branch also provides collective training development guidance and assistance to the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command G-3 TRES and the command's two brigades for FSO METL development.

Currently, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command has submitted a draft FSO METL for both the 1st Space Brigade and the 100th Missile Defense Brigade (GMD) to U.S. Army Training and Doctrine Command's Collective Training Directorate, Combined Arms Center. Department of Army guidance was that units would use approved Core and Directed METLs until their FSO METLs were approved. Both of U.S. Army Space and Missile Defense Command/Army Forces Strategic Command's Brigade FSO METLs are scheduled for review during the next Army METL Review Board, Feb. 23-25, 2010. 

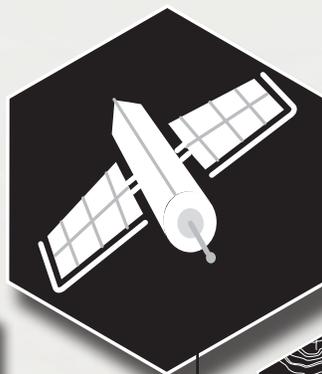
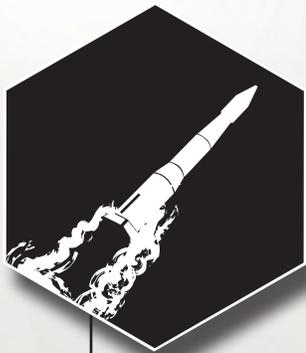
Excerpt of FM 7-15

## Proposed Space and Missile Defense

# UPDATES TO ARMY UNIVERSAL TASK LIST

**T**he Army Universal Task List (FM 7-15) is a comprehensive (but not all inclusive) catalog of Army tasks, missions and operations. The purpose of this catalog is to help commanders develop Mission Essential Task Lists as a cross reference for tasks and to supplement their core training focused METL or the directed training focused METL as required.

The following pages highlight the tasks from the Army Universal Task List that pertain specifically to space and missile defense. For a complete copy of the Army universal task list, go to <http://www.fas.org/irp/doddir/army/fm7-15.pdf>.



# SPACE

## Section I – ART 5.1 Execute the Operations Process

### ART 5.1.1.5 INTEGRATE

#### SPACE CAPABILITIES

5-14. Plan, coordinate, and integrate space-based capabilities and products (national, military, and commercial) to support the command and control of tactical planning and execution (the military decision-making process and conduct of operations) to effectively meet requirements established for mission accomplishment. Coordinate across all staff elements to identify space-based asset support. Determine essential, specified, and implied tasks from a space perspective in mission analysis. Develop space input to intelligence preparation of the battlefield and other staff estimates. Provide space-based support options, space-based products that support concept of operations development, and space-based products that support course of action analysis and statements in course of action development. Develop space running estimate. Coordinate for additional operational space capabilities to support mission requirements. Provide space-based input to event templates, synchronization matrix, decision support template, and communications and sustainment estimates.

(FM 3-14) (USASMDC)

# SPACE Continued



## SECTION VI – ART 5.6 Integrate Space Operations

### ART 5.6 INTEGRATE SPACE OPERATIONS

5-144. Space capabilities are integrated thoroughly into the force structure to enable Army operations, and are essential for mission accomplishment. Staffs down to brigade level integrate space capabilities and vulnerabilities into their mission analysis process. To ensure the maximum use of space, the Army integrates space capabilities into routine operations. )

(FM 3-14) (USASMDC)

### ART 5.6.1 PROVIDE SPACE FORCE ENHANCEMENT

5-145. Provide space force enhancement to the commander, staff, and subordinate units support using space-based sensors and payloads. Space force enhancement support to the Soldier includes position navigation and timing, surveillance and reconnaissance, communication, weather and environmental monitoring, and integrated missile warning.

(FM 3-14) (USASMDC)

### ART 5.6.1.1 PROVIDE SPACE-BASED POSITION, NAVIGATION, AND TIMING SUPPORT

5-146. Provide position, navigation, and timing support to assist the integration of the global positioning system (GPS) satellite constellation with user-level equipment. This task includes assessing the ability of both friendly and threat asset use, assessing and countering threats to friendly use, countering threat asset use and identifying requirements and coordinating for theater level enhanced coverage.

(FM 3-14) (USASMDC)

### ART 5.6.1.2 PROVIDE SURVEILLANCE AND RECONNAISSANCE SUPPORT

5-147. Provide intelligence, surveillance, and reconnaissance support to the Soldier by coordinating and using Department of Defense, national, and commercial space-based sensors and payloads and by coordinating with intelligence collection management personnel to enhance the G-2 collection capabilities.

(FM 3-14) (USASMDC)

**ART 5.6.1.3 PROVIDE SATELLITE COMMUNICATIONS SUPPORT**

5-148. Provide satellite communications support through coordination with regional satellite communications support centers, assessing satellite communications requirements and processing necessary requests for additional support as required.

(FM 3-14) (USASMDC)

**ART 5.6.1.4 PROVIDE WEATHER AND ENVIRONMENTAL MONITORING SUPPORT**

5-149. Provide weather and environmental monitoring support to maintain situational awareness of space and terrestrial weather, solar events and other atmospheric events, assess their impacts on space-based sensors and payloads, and inform commanders and staff on mission impacts.

(FM 3-14) (USASMDC)

**ART 5.6.1.5 PROVIDE THEATER BALLISTIC MISSILE WARNING SUPPORT**

5-150. Provide theater ballistic missile warning support to the in-theater commander with fast, accurate theater ballistic missile launch, trajectories and impact location information. It provides advanced warning and targeting data to missile defense batteries for more accurate firing solutions.

(FM 3-14) (USASMDC)

**ART 5.6.1.6 SYNCHRONIZE SPACE OPERATIONS**

5-1XX Provide Army space representation and support to the space coordinating authority (SCA). Assist the Space Support Elements (SSEs) in ensuring Army space equities are recognized and incorporated into Joint space operations. Assist in the joint space planning process and development of the space priorities. Coordinate space operations through the Army battlefield coordination detachment (BCD).

(FM 3-14) (USASMDC)

**ART 5.6.2 PROVIDE SPACE CONTROL**

5-151. To ensure friendly unit access to space to enable maneuver forces to benefit from space force enhancement and to deny the enemy use of space to contribute to gaining and maintaining information superiority as an advantage to friendly maneuver operations.

(FM 3-14) (USASMDC)

**ART 5.6.3.1 CONDUCT TRANSMISSION AND PAYLOAD CONTROL**

5-1XX Provide transmission and payload control of satellite communications system constellations for Department of Defense and maintain a backup contingency control capability through Army-maintained satellite operations centers. Payload control is responsible for configuring and maintaining the satellite transponders at assigned level.

(FM 3-14) (USASMDC)

**ART 5.6.3.2 OPERATE SATELLITE CONTROL FACILITY SUPPORT EQUIPMENT**

5-1XX Provide satellite the telemetry, tracking, and commanding needed for optimal performance and health of assets as well as planning and coordinating the resolution of satellite anomalies.

(FM 3-14) (USASMDC)

**ART 5.6.4 PROVIDE SPACE SITUATIONAL AWARENESS**

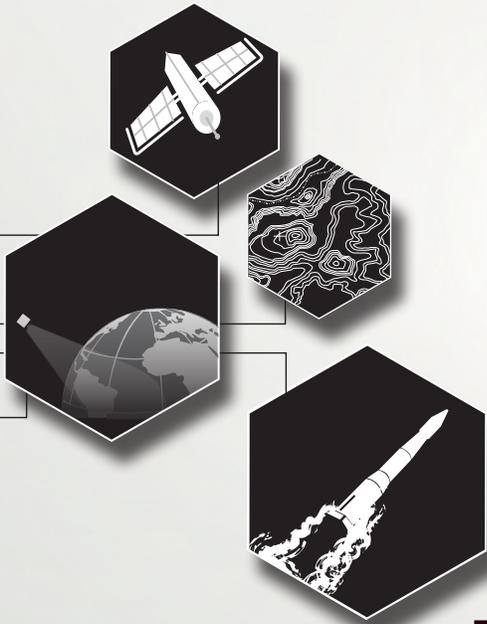
5-153. Space situational awareness includes space intelligence, space surveillance, space reconnaissance, space and terrestrial weather monitoring, and space COP. In support of the COP, monitor, detect, and characterize authorized and unauthorized satellite access on key communications platforms maintaining information superiority as an advantage to friendly maneuver operations. In space surveillance, executed space tracking and space object identification in support of the space surveillance network. Provide space situational awareness in the commander's COP.

(FM 3-14) (USASMDC)

**ART 5.6.5 COORDINATE ARMY SPACE CAPABILITIES**

5-153. Plan, coordinated, integrate, and control Army space capabilities and force structure to ensure the responsive application of space assets in support of the warfighter. Space capabilities include the mission areas of space force enhancement, space control, and space support and space situational awareness.

(FM 3-14) (USASMDC)



# MISSILE DEFENSE

## Section I – ART 6.1 Employ Air and Missile Defense

### ART 6.1 EMPLOY AIR AND MISSILE DEFENSE

**6-1.** The air defense system protects the force from missile attack, air attack, and aerial surveillance by any of the following: interceptor missiles, ballistic missiles, cruise missiles, conventional fixed- and rotary wing aircraft, and unmanned aircraft systems. It prevents enemies from interdicting friendly forces, while freeing commanders to synchronize movement and firepower. All members of the combined arms team perform air defense tasks; however, ground-based air defense artillery units execute most Army air defense operations. ART 6.1 includes fires at aerial platforms by both dedicated air defense systems and non-dedicated weapon systems.

(FM 3-27.10) (USASMDC)

### ART 6.1.5 PLAN BALLISTIC MISSILE DEFENSE

**6-18.** Plan and coordinate protection of the homeland and operational forces from ballistic missile attack by direct defense and by destroying the enemy's missile capacity. Determine essential requirements to achieve mission accomplishment using ballistic missile defense weapons in a defensive role to defend, detect, defeat, deter, and protect. Centralized planning for missile defense includes the protection of operational forces in the combatant commander's area of responsibility and destroying ballistic missile platforms in flight. Missile defense operations include all forces and activities that support active defense, passive defense, and attack operations.

(FM 3-27.10) (USASMDC)

### ART 6.1.6 CONDUCT BALLISTIC MISSILE DEFENSE

**6-19.** Defend an assigned area of interest, friendly forces, and infrastructure from ballistic missile attack. Conduct active ballistic missile defense operations to negate significant enemy missile attack. Missile defense activities are designed to destroy attacking enemy missiles exo- or endo- atmosphere, or to nullify or reduce the effectiveness of such attack. Conduct destruction of hostile missiles per rules of engagement. Provide ballistic missile warning support to the warfighter using contributing sensors.

(FM 3-27.10) (USASMDC)

### ART 6.1.7 MANAGE SYSTEM CONFIGURATION

**6-20.** Maintain optimal system configuration to support ballistic missile defense operations necessary to respond operationally and tactically. Identify and minimize degrading effects on readiness and maintain directed readiness condition. Be familiar with system element's (to include supporting sensor's) capabilities and limitations so the system configuration can be adjusted to ensure the optimal defense. Assess preplanned maintenance, test, and exercise requests to modify system configuration. Determine impact on the ballistic missile defense mission. Approve or disapprove requested modification. Ensure approved preplanned configuration changes are executed on time. Assess real-time (unplanned) system element outage impact on the ballistic missile defense mission. Decide or direct relevant information to the right person, at the right time, in a usable format, to facilitate situational understanding and decision making.

(FM 3-27.10) (USASMDC)

### ART 6.1.7.1 PERFORM ASSET MANAGEMENT

**6-XX.** Monitor and/or manage changes to assets supporting the Ballistic Missile Defense System in order to support ballistic missile defense operations necessary to respond operationally and tactically. Identify and minimize degrading effects of scheduled and unscheduled changes on readiness and maintain directed readiness condition. Be familiar with system element's (to include supporting sensor's) capabilities and limitations so the system configuration can be adjusted to ensure the optimal defense. Assess preplanned maintenance, test, and exercise requests to modify system configuration. Recommend approval or disapproval of requested modification through proper COCOM channels. Assess real-time (unplanned) system element outage impact on the ballistic missile defense mission. Make appropriate changes to the Ballistic Missile Defense System health and status or Operational Capability as required. Advise COCOM in determining the Ballistic Missile Defense System Capability. Decide or direct relevant information to the right person, at the right time, in a usable format, to facilitate situational understanding and decision-making.

(FM 3-27.10) (USASMDC)

## SECTION V – ART 6.5 Conduct Operational Area Security

### ART 6.5.7 PROTECT CRITICAL FACILITIES AND SYSTEMS

(NOTE: PROPONENT FOR ART 6.5.7 IS THE MILITARY POLICE SCHOOL)

**6-74.** Use protective measures to prevent or reduce the effects of enemy hostile acts (such as sabotage, insurgent actions, and terrorist attack) against unit critical facilities and systems designated as Site Security Level-A or Protection Level I. Protective measures include conducting local security operations, protecting individuals and systems, preparing fighting positions, preparing protective positions, employing protective equipment, reacting to enemy direct fire, reacting to enemy indirect fire, reacting to enemy aerial attack, reacting to a terrorist incident.

(FM 3-27.10) (USASMDC)



# Tip of the Sphere



## Army Space Cadre News

By Mike Connolly

Mike Connolly /// Bio



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.

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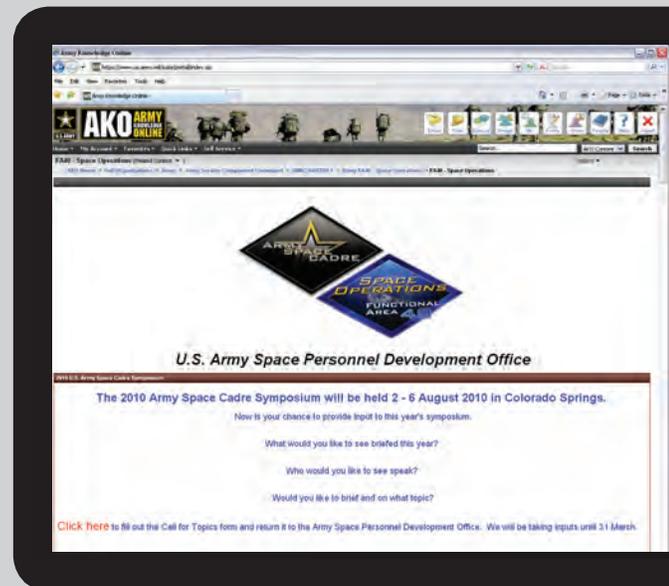
# Check out the ASPDO Web site

## AKO ASPDO Web site link:

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

Find out the latest on Functional Area 40 (FA40) and the Army Space Cadre. Site topics include:

- How to get your 3Y identifier and Air Force Space Badge
- Space Professional Development Opportunities
  - How to sign up for Space Fundamentals, Space 200 and Space 300 courses
  - Class schedules
  - Army Space Cadre Online Training Information
- - Latest Personnel News
  - Promotion results and analysis
  - Selection results for schools, internships and fellowships
  - FA40 billet information to include latest DA PAM 600-3 updates
  - Latest accessions
  - Latest FA40 roster



## Army Space Cadre Symposium

Aug. 3-6

If you haven't already, mark your calendars for this year's symposium, Aug. 3-6, at the Scitor facility in Colorado Springs, Colo. Hotel, conference registration, agenda and security clearance details are currently being worked. Look for new updates on the ASPDO Web site.



## New ASPDO Personnel

Please welcome Dave Hagedorn, our Army Space Cadre Knowledge Management Officer, who is hard at work designing the new Knowledge Management Web site. He served as the Operations Superintendent for the 50th Space Communications Squadron, Schriever Air Force Base, Colo., where he oversaw long haul communications, SIPRnet Help Desk functions, the COMSEC office, and communication operations. Dave then took a special duty assignment to Cheyenne Mountain Air Force Station as the J6 Superintendent, Chief of Network Integration, Missile Correlation Center Crewmember, and Budget Officer. After retiring from the Air Force in 2007, he worked as a solutions architect for a defense contractor in Colorado Springs. Dave recently completed the AKO Qualification Course in February as the Distinguished Honor Graduate.

He can be reached at (719) 555-0454 or [david.hagedorn@smdc-cs.army.mil](mailto:david.hagedorn@smdc-cs.army.mil).



COL Kendall Cunningham presents Chris Grayson of the G4 with a certificate inducting her into the Army Space Cadre. *Photo by Sharon L. Hartman*

# METL and Mettle

The first time I heard the acronym for Mission Essential Task List, METL, was while attending a course in Germany as I prepared to take command of an Aviation Company assigned to the 8th Infantry Division in Bad Kreuznach. The brigadier general who was explaining to a room full of young captains and first sergeants what METL meant, stressed the importance of developing/defining organizational essential tasks by incorporating what subordinate elements and individual Soldiers accomplished. This building block approach insured that each member of a command understood the importance of their specific position while collectively contributing to the overall success of the organization. In the 25 years that have passed since my initial exposure, the significance of the METL concept has expanded as demonstrated with this edition of the Army Space Journal, where it is the theme.

As I have discussed in previous editions of the ASJ, the Army Space Personnel Development Office has taken significant actions within the past year to more effectively serve the Army's space Community. All of these changes have been formulated through use of the same building block approach that I heard described all those years ago. Our intent is to better serve by more efficiently accomplishing our essential tasks, both on the Army Space Cadre Office and FA40 Personnel Development Office sides of our organization. Even though we have completed the process of identifying our formal tasks off of the Universal Joint Task List and tied them to the U.S. Army Space and Missile Defense Command METL, the task of providing the Army with a "Trained and Ready Space Cadre" is our primary focus. Developing space Professionals and Enablers by overseeing education and training opportunities, managing the Army's FA40 billets, coordinating for the coding of Space Enabler positions, serving as a member of the Officer Personnel Management System, Army Space Working Group,



Space Professional Working Group, and Joint Space Academic Group as well as awarding the Skill Identifier/Additional Skill Identifier 3Y and Air Force Space Badge are what we see as our essential tasks.

In addition to the acronym METL, the Army Space Personnel Development Office considers the phonic equivalent “mettle” which is defined as; Inherent quality of character and temperament; Fortitude and courage, as an important aspect in serving the Army Space Cadre. Although not always popular and sometime not well received, the actions that we take, the decisions we make and the recommendations we forward are all undertaken in an effort to:

- enhance the community and those associated with the execution of the Army’s space mission
- ensure space resources have or obtain the required skill set to support current space objectives
- ensure that the right level and depth of experience is assigned to the proper positions
- identify and assist in providing solutions to resource imbalance
- provide venues for the collaboration on and advancement of space issues

The Army’s Space Community is not a single, formalized organization and does not have a common METL creating a challenge in meeting the exact needs of everyone. However, Space Professionals and Enablers do share a foundation of essential tasks that move with them from assignment to assignment. We believe that by balancing our METL and mettle, we help prepare Space Cadre Members to be more capable of supporting their assigned organization’s METL.

**As always, we appreciate your feedback, input and thoughts.**

## How do we contact you?

In order to maintain contact and stay up-to-date on all FA40 and Space Cadre issues, personnel news and announcements, you are highly encouraged to frequently check or forward your AKO e-mail account. The Army Space Personnel Development Office will use this common address as the primary means to provide you useful and pertinent information.

## Promotions

Congratulations to the FA40s listed below on their promotions:

December 2009

MAJ Mark Cobos

MAJ James Edwards

MAJ Michael McGaffigan

February 2010

LTC Craig Cox (USAR)

## Accessions

Congratulations and welcome to our newest FA40s:

CPT Rob Gleghorn

CPT Timothy Bennett

CPT Parsana Deoki

CPT David Peterson

CPT Steven Wojdakowski

CPT Otis Davis

## Promotions Selections

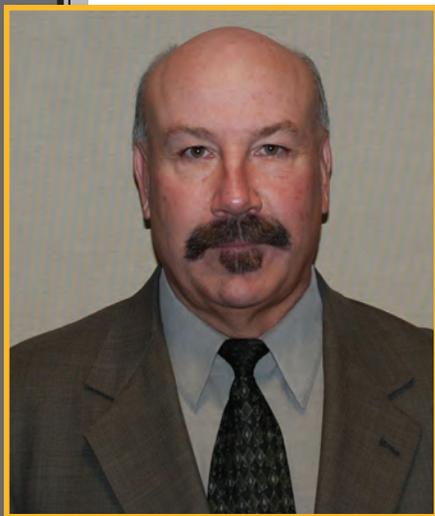
Congratulations to MAJ Brett Gardner and MAJ John Hennessey on their selection for promotion to LTC by the U.S. Army Reserve Lieutenant Colonel Promotion Selection Board.

# Tip of the Sphere

## Training Insights

By Larry Mize

Larry Mize /// Bio



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 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 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.

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[larry.mize@smdc-cs.army.mil](mailto:larry.mize@smdc-cs.army.mil)



# Upcoming Events

As the Future Warfare Center Directorate of Combat Development enters its tenth year of formal institutional training, subsequent Army Space Journal Training Insights articles will address aspects of this 10-year journey. The command's institutional training has evolved and matured tremendously during the first decade of the 2000s and continues to do so. There is more to follow, so stay tuned. In the interim, here are some key training events scheduled. Contact me for further information.

## ■ Training in Colorado Springs

FA40 Space Operations Officer Qualification Courses	
10-01	Jun. 7 – Aug. 20
10-02	Sept. 8 – Nov. 10
Quarterly Tactical Space Operations Course	
Dates TBD	
Joint Tactical Ground Station Leader Development Course	
New Course Offering	
Joint Tactical Ground Station Initial Qualification Training	
10-03	Mar. 1 – Apr. 16
10-04	Apr. 26 – June 11
10-05	Jun. 21 – Aug. 6
10-06	Aug. 23 – Oct. 8
GMD Operator Course	
10-03	July 12 – Aug. 27
AN/TPY-2 (FBM) Sensor Manager Qualification Course	
10-003	Apr. 19 – May 7
10-004	Jun. 7 – 25
10-005	Sept. 6 – 24

## ■ Mobile Training

Army Space Cadre Basic Course	
Huntsville, Ala	Apr. 5 – 9
JTAGS Korea and Japan	Dates TBD

## New JTAGS Leader Development Course Begins

By Greg Hatfield DCD JTAGS Courses Manager  
 Throughout the history of the Joint Tactical Ground Station (JTAGS) program, the leaders in JTAGS Detachments only received the necessary training to perform as operators. There was no formal training in place to assist in their role as leaders. The JTAGS-Leader Development Course will provide the leaders two weeks of additional training which will improve maintenance, reduce training time when they arrive at their assignments, enhance decision making, improve mission event reporting, and reduce reporting errors. Upon graduation from the JTAGS Initial Qualification Training, graduates in the rank of E5 (P) and above, will then attend the JTAGS Leader Development Course.

## ■ Fiscal Year 2010 Dates

JTAGS Leader Development Course	
Class 10-01	Feb. 22 – Mar. 5 (Pilot)
Class 10-02	Apr. 19 – 30
Class 10-03	Jun. 14 – 25
Class 10-04	Aug. 9 – 20



## Future Warfare Center Directorate for Combat Development Welcomes New Employee

The Directorate for Combat Development is proud to welcome to its team our newest Department of the Army Civilian, Michael Russell. Mike joined the team in early January after retiring from a career as an Army Infantry Officer and Functional Area 40 Space Operations Officer. Mike will support several Directorate of Combat Development institutional space training courses and he will be the key developer for two new space courses: an Advanced Space Operations Officer Course and an Army Space Support Team Initial Qualification Training course. -Welcome Mike!



## Army Aerospace Medicine Specialists Join Ranks of Space Enablers

The Future Warfare Center Directorate of Combat Development Army Space Cadre Mobile Training Team traveled to Pensacola, Fla., Jan. 25-29, to deliver the 40-hour Army Space Cadre Basic Course to Army Residents in Aerospace Medicine. Joining the new Army Space Enablers were also U.S. Navy Residents in Aerospace Medicine that took advantage of this specialty training opportunity.

The Army Space Cadre Basic Course provides a foundational educational understanding of space operations for Army Space Cadre Enablers. For these newest Enablers, the course was also tailored to account for their unique occupational skills as Army Doctors specializing in aerospace medicine. As an example, one lecture dealt with “BIO-MTX,” a system concept that monitors an individual Soldier’s vital signs and then transmits that data remotely to a field medical site. The space link within this concept is the “space architecture” that gets that medical data to remote medical field stations. This “space architecture” is none other than that of the Joint Friendly Force Tracking.

For more about the Army Residents in Aerospace Medicine, see the related article by COL John Albano in the next edition of the Army Space Journal. For information on the Joint Friendly Force Tracking mission read the “Joint Friendly Force Tracking Mission Network Operations Success” article in Volume 8, No. 3 edition of the Army Space Journal.



# Second Annual Space and Missile Defense Student Day

By Daryl Breitbach, FWC DCD Training

The 2009 National Education Alliance Partnership sponsored Space and Missile Defense Student Day took place Oct. 20, 2009 at the Huntsville, Ala., U.S. Space and Rocket Center. Similar to the 2008 Youth Education Day held in conjunction with the 11<sup>th</sup> Annual Space and Missile Defense Conference and Exhibition at the Von Braun Center in Huntsville, Ala., the 2009 Education Day brought in 7<sup>th</sup> and 8<sup>th</sup> graders from the local community.

Exhibitors included U.S. Army Space and Missile Defense Command's Future Warfare Center Directorate of Combat Development Education and Training Division, National Aeronautics and Space Administration, Unmanned Aerial Systems, Unmanned Ground Vehicles, and Space Camp. Activities entailed students rotating throughout all the exhibitors. Education Day exhibitors demonstrated a 15-20 minute presentation of their programs – some had hands-on, interactive

exhibits. Students also had a chance to walk through and visit the main exhibits at the U.S. Space and Rocket Center.

The U.S. Army Space and Missile Defense Command Future Warfare Center Directorate for Combat Development exhibit was provided by Larry Mize and Daryl Breitbach who also provided a video vignette of what it takes to get a satellite in orbit, how to maintain the satellite while in orbit, power, station keeping and pointing considerations. A hands-on practical demonstration activity was provided for students on satellite spin stabilization. Students were turned into a human gyroscope using a rotating platform and a bicycle wheel. The satellite overview DVD vignette was provided to the students along with a CD which included an orbital mechanics Computer Based Training module and other helpful educational material.



■ Future Warfare Center Directorate of Combat Development Cadre with Army and Navy Resident in Aerospace Medicine, NAS Pensacola Jan. 25-29



■ Naval Aerospace Medical Institute Coins of Excellence received by the Future Warfare Center Director of Combat Development Cadre

# A Joint Graduation Ceremony

By Larry Mize

## ■ JTAGS OPERATOR INITIAL QUALIFICATION TRAINING

## ■ AN/TPY-2 (FBM) SENSOR MANAGER QUALIFICATION COURSE

JTAGS Class 10-002



SMQC Class 10-003



### JTAGS Class 10-002

- \*\* SSG Derek Brown - EUCOM
- \* SPC Joshua J. Hammill - EUCOM
- SSG Joe R. Cole - KOREA
- SSG Kenneth S. Paul - EUCOM
- SPC Trey W. Barker - EUCOM
- SPC Andrew C. Johnston - JAPAN
- SPC Jonas L. Knehans - KOREA
- PFC Brandon T. Metzler - EUCOM

### SMQC Class 10-003

- \* 1LT Kyle B. Vonderheide - 357 AMD-D
- CPT Martin R. Martinez - 357 AMD-D
- SGT Justin J. Meyers - 357 AMD-D
- SPC Joshua L. Bowen - 94 AAMDC
- SPC Tobin D. Jarvis - 94 AAMDC
- Mr. Michael T. Wright - MD A/DW
- Mr. Trevor A. Lane - JFCC-IMD

\*\* Distinguished Honor Graduate, \* Honor Graduate

After completing the seven-week Joint Tactical Ground Station (JTAGS) Initial Qualification Training, Class 10-02 graduated Feb. 19 in a joint ceremony with the graduating class for the AN/TPY-2 (FBM) Sensor Manager Qualification Course 10-02. Earning Additional Skill Identified Q4, these new JTAGS operators are en route the 1<sup>st</sup> Space Brigade and assignments at forward JTAGS Detachments in Korea, Japan and Germany. The SMQC graduates are en route assignments in Hawaii or Germany or with the Missile Defense Agency or Joint Functional Component Command for Integrated Missile Defense.



## HISTORY OF JTAGS OPERATORS

In the late 1950s, shortly after the successful launch of the Soviet satellite Sputnik, the U.S. Air Force was given the responsibility to develop an infrared early warning system, which became the Missile Defense Alarm System (MIDAS). In the early 1960s nine MIDAS satellites were launched and real-time detection of missile launches was successfully demonstrated. The successful proof of capability to detect missiles from space led to the development of the current Defense Support Program which began in the late 1960s.

In 1988, U.S. Army Strategic Defense Command and Strategic Defense Initiative Office launched two new initiatives designed to examine near-term theater missile defense solutions. As part of one of those initiatives, a contract was awarded to Aerojet Electronic Systems for the Satellite Early Warning System to “demonstrate and quantify the accuracy to detect and track short range ballistic missiles.” This was the genesis of JTAGS.

In 1990 Aerojet was awarded a follow-on contract to the Satellite Early Warning System. This was dubbed the “Tactical Surveillance Demonstration” and was designed to utilize “national strategic assets [and] develop the hardware and software to extract useful data on tactical ballistic missiles.”

While Satellite Early Warning System was a “proof of principle” demonstration, Tactical Surveillance Demonstration would allow experimentation with real-time data and processing from two Defense Support Program sensors. Concurrently, during the 1991 Persian Gulf War, the Defense Support Program demonstrated the ability to detect short-range missile threats, however the information was warning only, did not offer redundancy, and burdened the long-haul communications infrastructure. As a result of these shortfalls, the warfighter often times did not receive timely accurate warning.

In 1992 a follow-on contract was awarded to Aerojet called “Tactical Surveillance Demonstration, Enhanced.” The system was designed to be mobile and capable of processing data from three Defense Support Program sensors and incorporating improved communication systems and other hardware/software upgrades. Also in 1992 the Army made the formal decision to pursue JTAGS development, the concept being a mobile system to deploy in support of theater missile defense during a major regional conflict.

In 1993, while developmental work proceeded with the Tactical Surveillance Demonstration, Enhanced project, the Tactical Surveillance Demonstration was upgraded and relocated from White Sands Missile Range, N.M., to Kelley Barracks, Stuttgart, Germany.

In 1994 the Tactical Surveillance Demonstration, Enhanced deployed to Osan Air Base, Korea. The Tactical Surveillance Demonstration and Tactical Surveillance Demonstration, Enhanced missions were such successes that the respective theater commanders requested that JTAGS permanently replace the older systems with them when fielded. JTAGS replaced the systems in Germany and Korea in 1997. In 1999 U.S. Central Command requested deployment of a JTAGS to Southwest Asia, which occurred in 2002. A fourth JTAGS was operationally employed in 2007 with the stationing of a JTAGS at Misawa Air Base, Japan.

## HISTORY OF AN/TPY-2 (FBM) SENSOR MANAGERS

Previously designated as the Forward Based X-Band Transportable (FBX-T) Radar, this X-band frequency radar is designated as the Army Navy/Transportable Radar Surveillance, or AN/TPY-2. The radar plays a vital role in the Ballistic Missile Defense System by acting as advanced “eyes” for the system, detecting ballistic missiles early in their flight and providing precise tracking information. The first radar, delivered in November 2004, is currently deployed in U.S. Pacific Command. In 2008, the second AN/TPY-2 radar was deployed to U.S. Central Command. There are plans to have as many as four radars deployed worldwide within the next five years. Command and Control, Battle Management, and Communications Program integrates the elements and components of the Ballistic Missile Defense System. It is the critical integrating command and control function that enables the Ballistic Missile Defense System. It provides the warfighter with a reliable, flexible, and real-time capability to plan, monitor, and manage the defense of the United States, its deployed forces, and friends and allies against ballistic missile threats. In April 2006, the first Command and Control, Battle Management, and Communications Program fielded to the warfighters in U.S. Pacific Command. After two years of testing and training, U.S. Army Space and Missile Defense Command/Army forces Strategic Command was tasked to develop the sensor manager qualification course to train future warfighters to operate the AN/TPY-2 (FBM) using the Command and Control, Battle Management, and Communications Program. The first validation course was conducted at Offutt Air Force Base in Omaha, Neb., April 2008, and the first qualification course began in July 2008. Sensor managers are now serving across the globe in support of the 24/7 Ballistic Missile Defense System mission.

# Tip of the Sphere

## Career Management

By MAJ Ed Anderson

MAJ Anderson /// Bio



Commissioned as a Field Artillery Officer, MAJ Ed Anderson is currently serving as the FA40 Career Manager. His assignments have included Deputy Commander, Missile Warning Center, Cheyenne Mountain Operations Center; Chief, Missile Defense Integration, CMOC; and Space Control Planner, 1st Space Brigade. He is a graduate of the Interservice Space Intelligence Operations Course, Ground-based Missile Defense Operators Course, Space Operations Officer Qualification Course, and Space 300.

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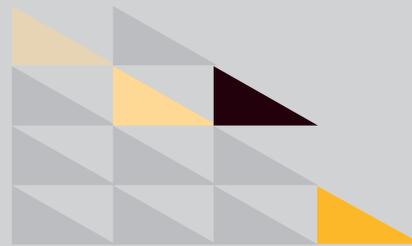
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## Getting Ready for Boards

We're halfway through the 2010 Fiscal Year Army board schedule. Here are some frequently asked questions and trends to help you prepare for future boards. Of note, the Fiscal Year 2011 board schedule will be challenging with U.S. Army Human Resources Command's move to Fort Knox, Ky., and a new FA40 assignment officer. I encourage everyone to review their files in the coming months and send any updates.

- **Army Service Uniform** - I'm seeing more and more Department of Army photos with the Army Service Uniform and recently took my photo with it. The wear out date for the Army Green Service Uniform is July 2014. During this transition period, official Department of Army photos can be in either the Army Green Uniform or the Army Service Uniform. More info is available at: [www.army.mil](http://www.army.mil)
- **Afghanistan and Iraq Campaign Medals** - I continue to see issues with the Afghanistan Campaign Medal and Iraq Campaign Medal on both the Officer Record Brief and Department of Army photo. Soldiers are authorized bronze service stars for the number of campaigns participated in NOT the number of deployments. Every Afghanistan Campaign Medal and Iraq campaign Medal should have at least one bronze service star. More info is available in the Frequently Asked Questions tab at the U.S. Army Human Resources Command Awards and Decorations Homepage: <https://www.hrc.army.mil/site/Active/TAGD/awards/index.htm>
- **Unit Awards** - Information on unit awards can be found at the above U.S. Army Human Resources Command Awards and Decorations home page.
- **Officer Record Brief Duty Titles** - We all know that duty titles and descriptions should be worked out during Officer Evaluation Report counseling. When you arrive at your duty station, I change the duty titles from Incoming Officer to Space Operations Officer. If your duty title is something other than Space Operations Officer, let me know so I can update your Officer Record Brief.



## Upcoming Events:

**Fiscal Year 2010 COL Board (Year Group 89/90)**  
Convenes June 8, 2010

**1st Space Battalion Command Selection Board**  
Summer 2010

**ACS/TWI Selection Board**  
Summer 2010



# SPACE IN THE COUNTERINSURGENCY FIGHT





### Army Families are Army Strong

By Sharon L. Hartman, USASMD/ARSTRAT PAO

4F



### Four Army Space Teams Deploy

By DJ Montoya, 1st Space Brigade

8F



### Army Astronaut Posts First Tweet from Space

By National Aeronautics and Space Administration

8F



### "He Left a Legacy That We Will All Remember"

By Kari Hawkins, USAG Redstone

14F



### Headquarters Company

Learns Critical Urban Terrain Combat Skills in Field Exercise

By CPT Kendall C. Wells, Headquarters and Headquarters Company Commander, 1st Space Battalion

20F



Maj. Gen. Stephen L. Hoog, deputy commander, U.S. Air Forces Central Command and deputy, Combined Force Air Component commander, U.S. Central Command speaks with attendees of the Theater Space Conference, Feb. 8, 2010, at a base in Southwest Asia. (U.S. Air Force photo/Staff Sgt. Manuel J. Martinez/released)



# SPACE PROFESSIONALS

Effectively Employ Space  
in Counterinsurgency Fight

By Senior Airman Dillon White  
U.S. AFCENT Public Affairs



Photo Credit: Defense Department photo by Steve Cunningham



## “We provide a 3-D visualization of the battlespace to our Coalition partners.



**SOUTHWEST ASIA** — More than 40 space warfighters from the U.S. and deployed locations in Iraq, Afghanistan and Southwest Asia attended the Theater Space Conference here, Feb. 8 to 10.

The space experts, from all services, collaborated to improve and maintain current space capabilities, such as global positioning, satellite communications, space control, and command and control systems.

Early in the conference, U.S. Air Force Maj. Gen. Stephen Hoog, Combined Force Air Component deputy commander, challenged space operators to take operational integration to a new level of effectiveness. He also spoke of the need to integrate all facets of combat power - air, ground, space and cyber.

“Space forces, just like air and ground forces, are adapting their capabilities, effects and operations to the current conflict, rather than trying to fit the conflict to their way of doing business,” he said.

Following Maj. Gen. Hoog’s remarks, attendees from each regional command in Afghanistan and Iraq shared the successes, challenges and issues they currently face in U.S. Central Command’s efforts to support air and ground commanders.

U.S. Army Lt. Col. George Wingfield asks Maj. Gen. Stephen L. Hoog, deputy commander, U.S. Air Forces Central Command; deputy, Combined Force Air Component commander, U.S. Central Command, a question during the Theater Space Conference, Feb. 8, 2010, at a base in Southwest Asia. *U.S. Air Force photo/Staff Sgt. Manuel J. Martinez*



Space is all about completing that visual picture, whether it's the enemy, the terrain, the time or the target, the more complete the visualization we can provide for our Coalition forces, the more effective they can be .”

**MAJ Tod Fenner**  
Army Space Support Team Leader  
U.S. Army

Space experts also put their information and combined experiences to work.

“This is not just a conference where people come and listen passively,” said U.S. Air Force Col. David Thompson, U.S. Air Forces Central director of Space forces. “We break people up into work groups, assign them specific tasks and say, ‘Okay, your job is to find a solution to this problem and report back on your work.’”

U.S. Army MAJ Tod Fenner, Army Space Support Team leader, said topics covered during the three-day conference will help him better support Coalition forces at Kandahar Air Field, Afghanistan.

“We discussed the unique challenges associated with working within a coalition environment,” he said. “We covered how we can better share vital space information with Coalition forces, which can often be a challenge because of security classification guidelines.”

This better understanding will allow Fenner to provide relevant information in a timely fashion without compromising security.

“We provide a 3-D visualization of the battlespace to our Coalition partners,” Fenner said. “Space is all about completing that visual picture, whether it's the enemy, the terrain,

the time or the target, the more complete the visualization we can provide for our Coalition forces, the more effective they can be.”

The proof of the conference's effectiveness can be found in its track record -- actionable solutions and plans that Soldiers, Marines, Sailors and Airmen have produced here.

“During the conference in June, we addressed the draw-down in Iraq and buildup in Afghanistan,” Thompson said. “We needed a plan to draw down Space forces and space support in one place and build it up in another. We put together a team to create that plan, [and] then implemented it. The Space-force transition is now in the final stages of completion.”

Integration of space capabilities between U.S. and Coalition forces, such as Afghanistan's International Security Assistance Force, also took root at a TSC.

“Integration and synchronization of effects can only go so far through e-mails, phone calls and video teleconferences,” said U.S. Army LTC Rich Lewis, USAFCENT deputy director of Space Forces. “Building an effective team that can deal with these complex challenges requires strong relationships. This conference also strives to build those relationships.” ▲

Maj. Gen. Stephen L. Hoog, deputy commander, U.S. Air Forces Central Command and deputy, Combined Force Air Component commander, U.S. Central Command speaks with attendees of the Theater Space Conference, Feb. 8, 2010, at a base in Southwest Asia. U.S. Air Force photo/Staff Sgt. Manuel J. Martinez





Staff and delegates cheer after hearing that their issue had been accepted and is moving forward. *Photo by DJ Montoya*

# ARMY FAMILIES ARE ARMY STRONG

By Sharon L. Hartman, USASMDC/ARSTRAT



An observer takes notes during a workgroup session. *Photo by DJ Montoya*



Members of the Education/Consumer/Employment workgroup working hard during the conference. *Photo by DJ Montoya*

“Standing behind every Soldier is an Army of husbands and wives, sons and daughters, brothers, sisters, fathers, mothers.” These words from an Army Family, Army Strong video remind us that Army life is not just about Soldiers, it is about Families too. From March 19-23, Soldiers, Family Members and Civilians of U.S. Army Space and Missile Defense Command/Army Forces Strategic Command gathered at the Cheyenne Mountain Conference Center in Colorado Springs, Colo., to discuss the challenges of Army Families and how to make Army living better.

The get-together, better known as the Army Family Action Plan (AFAP) Conference began in the late 1970s, when a group of Army Spouses began a grassroots program whose mission was to improve the standard of living for Army Families.

“The goal of AFAP is to identify and prioritize issues affecting quality of life for the Total Army Family,” said Julia Maldonado, Family Readiness Support Assistant, USASMDC/ARSTRAT.

In 1983, after several years of successful progress, the Department of the Army officially adopted the AFAP. Twenty seven years later, AFAP is still going strong. To date, there are 449 issues completed, 77 active issued, 120 issues determined unattainable, 112 Legislative changes, 159 Department of Defense or Army policy changes, and 178 improved programs or services. From housing to health care to education, lives of Army Families have been made better one issue at a time.

Each Army major command conducts its own AFAP conference. Delegates gather to discuss the issues and prioritize which ones they would like to vote on to be sent forward to the headquarters Department of Army AFAP Conference.

“We establish work groups that represent the Total Army Family – active and reserve Soldiers, Family members, Civilians and Retirees,” said Maldonado. “Proposed solutions are addressed with the goal of building self-reliance. It also further unites the community through Soldiers, Families, Retirees and Civilians.”

Although many issues faced by Army families are the same, with the diverse locations of USASMDC/ARSTRAT units, there can also be issues specific to certain locations. That is what makes their conference unique in comparison to other commands. Delegates do not just travel from within the U.S. for this conference. With sites in Korea, Japan, Kwajalein Atoll, Germany, and across the U.S., delegates come from all over the world to participate in this important event.

“AFAP is great in that it gives Soldiers and Families a forum to provide feedback on how Army policies and processes are actually doing,” said Charlie Company, 53rd Signal Battalion 1SG Christopher W. Harbach, a delegate from Landstuhl, Germany. “The senior leaders who develop the policies and procedures can’t see every individual for that input, but through AFAP, they can get those priority issues addressed for the Army community.”

This year’s USASMDC/ARSTRAT conference, organized by KC Bertling, AFAP/Family Program Manager/Program Analyst Military Personnel Division G1, began with training sessions by Patty Centeno, Department of Army AFAP representative. Delegates were split into three groups – Education/Consumer/Employment; Medical/Dental/TRICARE; and Soldier/Housing – each with a facilitator, transcriber and recorder staff. Centeno began with staff training to ensure staff members understood their roles and how they would provide direction and support necessary for the success of their delegate groups. During training, each facilitator took turns role playing possible scenarios they could encounter during the group sessions.

Next the delegates attended a training session which provided them with the stringent guidelines for issue development and the flow of the next several days. The day ended with a Luau dinner hosted by the USASMDC/ARSTRAT Commanding General, LTG Kevin T. Campbell, CSM Ralph Borja, and their wives Kathy Campbell and Nguyet Borja.

The following morning, delegates and staff members got down to business sorting through various issues, asking questions of subject matter experts, and determining what action they would like to take with each issue. Each workgroup debat-

ed issues, voted on their top three and developed issue papers over three days in preparation for the final out brief on Friday. After an intense week, the three workgroups presented their top three issues to the command leadership through a workgroup spokesperson. The top three issues for each workgroup were:

## Education/Consumer/Employment

1. Centralized Scholarship Database for the Total Army Family
2. Standardized Continuing Education Awareness for the Total Army Family
3. Military Liaison/Education for Local Law Enforcement

## Medical/Dental/TRICARE

1. TRICARE Dental Program Benefits and Co-Shares
2. Wait Times at Installation Pharmacies
3. Soldier Education on TRICARE and Exceptional Family

## Member Program (EFMP) Entitlements Soldier/Housing

1. Transportation Claims Process
2. 15-year Retirement for Soldiers
3. Enlisted Soldier Pay Incentives for Degree Completion

As each presentation was made, Campbell and Borja dialogued with the group spokespersons regarding their issues and asked questions for clarity. With the presentations over, the delegates voted from the nine issues to find the top three that will move on to the Department of Army AFAP Conference. The results were:

1. Enlisted Soldier Pay Incentives for Degree Completion
2. TRICARE Dental Program Benefits and Co-Shares
3. Soldier Education on TRICARE and Exceptional Family Member

Harbach, the spokesperson for the Soldier/Housing workgroup was ecstatic that an issue from his group received the top number of votes. “It’s a great sense of accomplishment. It made me feel like I did my part to ensure that issue was clearly identified and articulated with an achievable solution for the USASMDC/ARSTRAT commanding general and AFAP delegation to select it for review at the DA level.”

Delegates from the command will join the command leadership at the Headquarters Department of Army AFAP Conference in early 2011 to lobby for their issues. ▲

# UCCS CADET VISIT

Captions by DJ Montoya, 1<sup>st</sup> Space Brigade    Photos by Michael Kahl, USASMDC/ARSTRAT



USASMDC/ARSTRAT Deputy Commanding General for Operations, BG Kurt S. Story, welcomes Reserve Officer Training Corps cadets from the University of Colorado at Colorado Springs. The ROTC cadets received a tour of the building as well as briefings from several junior officers within the command.



1LT Brendan Curran, Aide de Camp to BG Kurt S. Story, gives the main command brief to visiting cadets from the University of Colorado at Colorado Springs, Reserve Officer Training Corps.



MAJ Jason Needler gives an Army Space Support Team presentation to visiting Reserve Officer Training Corps cadets from the University of Colorado at Colorado Springs.

# FOUR ARMY SPACE TEAMS DEPLOY

By DJ Montoya, 1<sup>st</sup> Space Brigade Public Affairs

PETERSON AIR FORCE BASE, Colo. — A first for Army Space Soldiers occurred as four highly specialized teams composed of active duty, Army Reserve, and Army National Guard personnel deployed into theater early this year.

Prior to their departure, a farewell ceremony was conducted at the Peterson Air and Space Museum, where the twenty-one Soldiers from the 1<sup>st</sup> Space Brigade stood before their peers, Families, and Friends as they prepared to say their goodbyes.

These Soldiers compose two Army Space Support Teams from the 1<sup>st</sup> Space Battalion; a Commercial Imagery Team from the 117<sup>th</sup> Space Battalion, Colorado Army National Guard; and an Army Space Coordination Element from the 1<sup>st</sup> Space Brigade.

“Since 9/11, this brigade has deployed over 30 different units in continuous rotations along with a sustained presence of a unit in Qatar pulling missile warning for the entire theater,” said COL Jeffrey Farnsworth, commander 1<sup>st</sup> Space Brigade during the farewell ceremony.

The four units are providing warfighters in theater with space-based capabilities and products.

Farnsworth continued by saying, “The Army’s only Space Brigade is comprised of Active, Army Reserve, and National Guard.”

“We are by far the best example in the Army of what composite organizations are all about. [We are] pulled together as one regardless of component. And for the first time in our history we are able to optimize the support we provide to U.S. Central Command through what we call our own brigade internal Army force generation model. Today is the first time we have sent off so many of our units at once.”

LTC J. Dave Price, commander of the 1<sup>st</sup> Space Battalion also commented on the ceremony by stating, “You have to forgive me because I’m bursting with pride today.”

“The Soldiers you see in front of you may be our best ever. For sure they are following the footsteps of our most accomplished space force enhancement teams and these men

and women are ready to compete at the same or higher levels.”

“For almost a decade the 1<sup>st</sup> Space Battalion and Brigade have served with almost every combined or task force headquarters in Iraq, Afghanistan, and CENTCOM brilliantly. All that experience has been captured and passed on to our folks here today. Like I said before they may be the best ever.”

Last to address the audience at the ceremony was MAJ Jesse Morehouse, commander of the 117<sup>th</sup> Space Battalion Colorado Army National Guard.

“We are gathered here to bid farewell to some fine space professionals.”

“You wouldn’t think a farewell to people is a day that bears much celebration. We are about to send these folks away from their Families, their friends, and their full-time careers in order to go half way around the world and execute a challenging and possibly dangerous mission.”

“But when I look up and down at their faces and I look out at yours I don’t see a lot of regret. I see acceptance, support, pride, even a little anticipation. It really is not a sad day at all. This is a day to celebrate, to stand tall and be proud of these Soldiers, who like so many other Soldiers in the Army along with their Families – and in the case of the National Guard, their employers – are doing their part to defend our great nation.”

As is the tradition during these farewell ceremonies the brigade or battalion commander presented the senior Soldier of each deploying team with a mission coin.

Each coin is entrusted to the team leader for safekeeping throughout the operational deployment, and upon safe return it is then placed in a plaque and displayed in the brigade or battalion headquarters.

In addition to the presentation of the coins, a Colorado State flag was presented to the deploying guardsmen of the Commercial Imagery Team from the Colorado Family Assistance Center. 



LTC J. Dave Price, commander of the 1<sup>st</sup> Space Battalion, congratulates SSG Juanita Johnson from an Army Space Support Team during the departure ceremony. *Photos by Larry Hulst, U.S. Air Force*



LTC Rich Lewis and MAJ Tammy Aguilar, both with the 1<sup>st</sup> Space Brigade Army Space Coordination Element, admire the mission coin entrusted to their care during this round of deployment. *Photos by Larry Hulst, U.S. Air Force*



Members of Army Space Support Teams, 2<sup>nd</sup> Space Company, 1<sup>st</sup> Space Battalion. *Photos by Larry Hulst, U.S. Air Force*



CPT Adam Brink and fellow members of Commercial Imagery Team, 117<sup>th</sup> Space Battalion, Colorado Army National Guard, show their appreciation as a member from the Colorado Family Assistance Center presents the group with a Colorado State flag to fly at their final destination. *Photos by Larry Hulst, U.S. Air Force*

# ARMY ASTRONAUT

## Posts First Live Tweet from Space

By National Aeronautics and Space Administration

HOUSTON, Texas — (Jan. 22, 2010) ¾ Astronauts aboard the International Space Station received a special software upgrade this week ¾ personal access to the Internet and the World Wide Web via the ultimate wireless connection.

U.S. Army Soldier and International Space Station Expedition 22 Flight Engineer Col. Timothy (T.J.) Creamer made first use of the new system Jan. 22, when he posted the first unassisted update to his Twitter account, @Astro\_TJ, from the space station. Previous tweets from space had to be e-mailed to the ground where support personnel posted them to the astronaut's Twitter account.

“Hello Twittersverse! We r now LIVE tweeting from the International Space Station ¾ the 1st live tweet from Space! :) More soon, send your ?s” was the message from Creamer.

The space station's new personal Web access, called the Crew Support LAN, takes advantage of existing communication links to and from the station and gives astronauts the ability to browse and use the Web. The system will provide astronauts with direct private communications to enhance their quality of life during long-duration missions by helping to ease the isolation associated with life in a closed environment.

During periods when the station is actively communicating with the ground using high-speed Ku-band communications, the crew will have remote access to the Internet via a ground computer. The crew will view the desktop of the ground computer using an onboard laptop and interact remotely with their keyboard touch pad.

Astronauts will be subject to the same computer use guidelines as government employees on Earth. In addition to this new capability, the crew will continue to have official e-mail, Internet Protocol telephone and limited video-conferencing capabilities. ▲



U.S. Army Soldier-Astronaut and International Space Station (ISS) Expedition 22 Flight Engineer Timothy J. (T.J.) Creamer sent the first live tweet from space via the popular online social media site, Twitter, on Jan. 22, 2010. The tweet was made possible by recent technical enhancements made to accommodate direct private communications for ISS crew members to enhance their quality of life during long-duration missions by helping to ease the isolation associated with life in a closed environment. *Courtesy graphic*



# FORMICA

## Nomination Confirmed

Department of Army Announcement

MG Richard P. Formica has been confirmed by the U.S. Senate for appointment to the rank of lieutenant general and assignment as commanding general, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command.

Formica's previous assignment was commander of the Combined Security Transition Command-Afghanistan in support of Operation Enduring Freedom.

Formica was commissioned into the U.S. Army on Jun. 8, 1977, as a second lieutenant. His duty stations include: Germany; Fort Sill, Okla.; West Point, N.Y.; Fort Hood, Texas; Fort Leavenworth, Kan.; and Washington, D.C.

Formica has attended the Field Artillery Officer Basic and Advanced Courses, the United States Army Command and General Staff College, and the National War College. He has a Bachelor of Science in political science, a Master in Military Arts and Sciences in military studies, and a Master of Science in national security and strategic studies.

His decorations include the Distinguished Service Medal, Defense Superior Service Medal, Legion of Merit (oak leaf cluster), Bronze Star Medal, Meritorious Service Medal (five oak leaf clusters), Army Commendation Medal (oak leaf cluster), and the Army Achievement Medal (two oak leaf clusters). 

# Got S\_pace?



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# CELEBRATING BLACK HISTORY

By DJ Montoya, 1<sup>st</sup> Space Brigade  
Photos by Craig Denton, U.S. Air Force



Dr. La Vonne I. Neal, guest speaker, addresses the crowd during the USASMDC/ARSTRAT Black History Month Observance.

PETERSON AIR FORCE BASE, Colo. — A packed crowd of Soldiers, Civilians, and Contractors listened intently as BG Kurt S. Story enlightened them with a bit of history about the Army's first black female CSM Mildred C. Kelly. Story, Deputy Commanding General for Operations, U.S. Army Space and Missile Defense Command/ Army Forces Strategic Command spoke to the attentive crowd on the morning of Feb. 18, as the command's annual Black History Month Observance was celebrated in the training rooms of Building 3.



Dr. La Vonne I. Neal (far left) is served by Norma Jenkins (far right) from the command's G2 section during the ethnic tasting portion of the observance.

Kelly became the first black female sergeant major in the Army while serving at the Pentagon in 1972. She achieved another first two years later when she became the first female command sergeant major at a major installation.

“She blazed the trail for all of us here today,” said Story.

Story also pointed to Army Space Soldiers today who are continuing the tradition such as CPT Tilisha Lockley, commander of Bravo Company, 53<sup>rd</sup> Signal Battalion and SGT Tomekia N. Brevard from 2<sup>nd</sup> Space Company, who recently returned from in theater with Army Space Support Team 2.

Next, guest speaker, Dr. La Vonne I. Neal, Dean - College of Education at the University of Colorado at Colorado Springs, took center stage and began with a brief explanation of her job.

“A dean is a university officer and third in command at the university,” said Neal.

“I have four academic departments under my control including, teaching, special education, counseling, and leadership. One of the hallmarks of our program is culturally responsive teaching, leadership, and counseling. That is one of the main ingredients of our program. I am responsible for making sure all of our personnel are culturally responsive.”

As a former Army captain, Dean tailored her instruction of the Black History theme using cross cultural confidence while discussing its evolution as well as that of the National Association for the Advancement of Colored People, Black History Week/Month, and the National Urban League. But more specifically she touched upon the correlation between education and economics.

“One of the many reasons you are here today is to focus and be a part of that cross-cultural competence experience. What you learn here today will help you understand some of the epistemology and the way of knowing of individuals who are culturally and linguistically diverse.”

In addition to Dr. Neal’s speech SGM Marcus Campbell from the 1<sup>st</sup> Space Brigade S3 section recited President Obama’s Nobel Peace Prize acceptance speech, and Omoyemen Eyekhobhelo, a local Colorado Springs resident, displayed her Black Art collection. Ruth Steele, director of the Martin Luther King Jr., museum in Pueblo, Colo., was also in attendance. ▲



Left to right: Holly Story, Dr. La Vonne I. Neal and Omoyemen Eyekhobhelo listen to BG Kurt Story’s opening remarks during the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command’s Black History Month Observance.



# “HE LEFT A LEGACY THAT WE WILL ALL REMEMBER”

By Kari Hawkins, USAG Redstone

REDSTONE ARSENAL, Ala. — Husband. Son. Brother. Soldier. Leader. Patriot. Friend.

“Those simple but profound words are the essence of a man who left an indelible mark on all of us,” said retired MG Jim Cravens.

Cravens' description of his longtime friend and professional colleague, retired LTG Larry Dodgen, recalled a military leader who loved the Army and the Soldiers under his command. That theme resonated throughout a Feb. 25 memorial service at Bicentennial Chapel for Dodgen, 60, who died from a heart attack while playing tennis on Feb. 20.

Even as a young leader, Dodgen exhibited the “special leadership qualities that made him destined for great things to come in the future,” Cravens said. He first met Dodgen 30 years ago when the two served together.

Dodgen's leadership qualities took him through the ranks from second lieutenant to lieutenant general during a 34-year career that included serving in Korea and Germany as well as at Fort Hood and Fort Bliss, Texas, Fort McClellan and the Pentagon; leading the 8th Battalion, 43rd Air Defense Artillery into combat in Saudi Arabia during Operation Desert Storm, and commanding both the Aviation and Missile Command from 2001 to 2003 and the Space and Missile Defense Command/Army Forces Strategic Command from 2003 until his retirement in January 2007.

After retirement, Dodgen joined Northrop Grumman in Huntsville as vice president of strategy for the missile systems business area. He served in other business areas and was

recently appointed to corporate lead executive for the company's Huntsville operations, serving as the principle point of contact for all Northrop Grumman business in the region and coordinating the company's local business and community interests.

“He was trusted with positions of complexity and responsibility,” Cravens said. “He made leading Soldiers look ridiculously easy. He was a natural-born leader with high standards who led from the front.”

Both personally and professionally, Dodgen “personified excellence” with a deep set of values, impeccable integrity, rock-solid credibility, well-reasoned decision making skills, an infectious personality and competitive athletic nature.

“He had an amazing ability to stay connected with those he knew and served with in the past,” Cravens said. “He was a fervent vocal champion for those he knew and those who served under his command ... He left a legacy that we will all remember ... He had an infectious personality and a jovial laugh with a unique gleam in his eyes. I, for one, will miss that laugh and miss that look in his eye.”

While his Army family was a source of pride for Dodgen, Cravens was joined at the podium by two others who represented the other significant aspects of Dodgen's life - former Huntsville Mayor Loretta Spencer, who spoke of his commitment to the community; and brother George Dodgen, who spoke of what Dodgen meant to his family.

“I have served with someone who gave his time and dedication to this city more than once,” said Spencer, who worked closely with Dodgen in the days following the 9/11 attacks.



# LTG Larry Dodgen

(June 12, 1949 — February 20, 2010)

“In our community, he became a special friend.”

George Dodgen spoke of his brother's love for family, especially wife Leslie; the military and tennis. Dodgen was born in New Orleans and graduated from Louisiana State University. He met his wife, also an avid tennis player, on the tennis court.

Dodgen's brother recalled the interest he showed in the military when, in second grade, he participated in an elementary Ranger program with his two brothers.

“We all loved it,” George Dodgen recalled. “But Larry had a special and lasting attraction to the Rangers. I believe that was the seed to his career.”

Once his path was chosen, Dodgen's family knew he would go on to achieve success. “Larry was a rising star and we knew one day he would do great things,” George Dodgen said. “Our beliefs have been fulfilled many times.”

Dodgen's military awards and decorations include the Defense Distinguished Service Medal with oak leaf cluster, Legion of Merit (two oak leaf clusters), Meritorious Service Medal (four oak leaf clusters), Army Commendation Medal and the Army Achievement Medal.

George Dodgen described his brother's infrequent visits home as “filled with love and joy. It was always an event when he came home.

“We all looked up to Larry. But not for his achievements. We looked up to him because he was so filled with life and energy. His sunrises were spectacular. I'm sure he had many

burdens from his career, although we never saw them. Though he was not around often, his presence was always felt. To say we all looked up to him is too simple.”

During the service, Chaplain (Lt. Col.) Marvin Luckie read Psalm 23 and the congregation sang “Amazing Grace.” There was also a 21-gun salute and the sounding of taps prior to the casket being carried to the hearse by Soldiers of the 145th Aviation Regiment Honors Detachment from Fort Rucker.

“We are here to honor a great American and to mourn our loss,” Luckie said during the service. “We need to pause for a moment to catch our breath as death has caught us by surprise. Death always catches us off guard. Today reminds us that life is a gift.”

He reminded the congregation that death cannot take away memories and experiences and, although everyone has their own way of dealing with the loss of a loved one, they also have the ability to use the loss as a way to reflect on life and choose to make a difference in the life they are living.

“Faith is our source of strength,” Luckie said. “By putting our wounded souls in our Creator's hands we can do all things through faith and we can have hope ... It is your concern and presence that brings hope. Our coming together of hearts brings hope and love. Nothing can separate us from the love of our Shepherd.” 

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## Getting Healthy is Flippin' Sweet!

By Sharon L. Hartman, USASMDC/ARSTRAT

In an effort to promote healthy lifestyles, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command's Commanding General, LTG Kevin T. Campbell has implemented the Fitness Life Improvement Program (FLIP). Open to all members of the command, participants earn points based on exercise, education and intervention.

Huntsville members held their kickoff event on May 5, while Colorado Springs participants conducted theirs on May 20. The kickoffs included a two-mile run and one-mile walk to get the program started. In Huntsville, nearly 30 runners followed Chief of Staff, COL Kendal Cunningham on a two-mile run, and approximately 45 walkers joined SGM John Mattie on a one-mile walk. In Colorado Springs, Deputy Commanding General for Operations, BG Kurt S. Story led more than 100 runners along the 2-mile course while a group of about 30 walkers navigated the one-mile route.

Observing the commands worldwide presence, the initial points earned will symbolize a virtual tour across the globe on the FLIP Points Tracker found at <https://www.us.army.mil/suite/page/634039>.

Members of USASMDC/ARSTRAT Operations, Colorado Springs are led through a series of stretching exercises at the Peterson Air Force Base Picnic Ground before the FLIP walk/run.

*Photo by DJ Montoya*



Deputy Commanding General for Operations BG Kurt S. Story addresses the attendees at the USASMDC/ARSTRAT FLIP kick-off at Peterson Air Force Base the afternoon of May 20.

*Photo by Michael Kahl*



Army Space Soldiers, some with families members along for the ride, give it all they've got during the two-mile run. *Photo by DJ Montoya*

## New Missile Defense Complex Building Opens

LTG Kevin T. Campbell (center), commanding general, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, and CPT Anthony Mortrud, commander, Alpha Company Military Police, cut the ceremonial ribbon at the opening of the new Alpha Company Headquarters Building on the Missile Defense Complex at Fort Greely, Alaska on Feb. 11. COL Gregory Bowen, commander, 100th Missile Defense Brigade (GMD), and LTC Steve Carroll, commander, 49th Missile Defense Battalion, also looks on. The new facility will allow the company command to be collocated with the Soldiers who work daily to secure the missile defense complex.



Photo by SFC Kevin McGaha, 49th Missile Defense Battalion

## Leaders Visit STRATCOM for CAPSTONE Conference

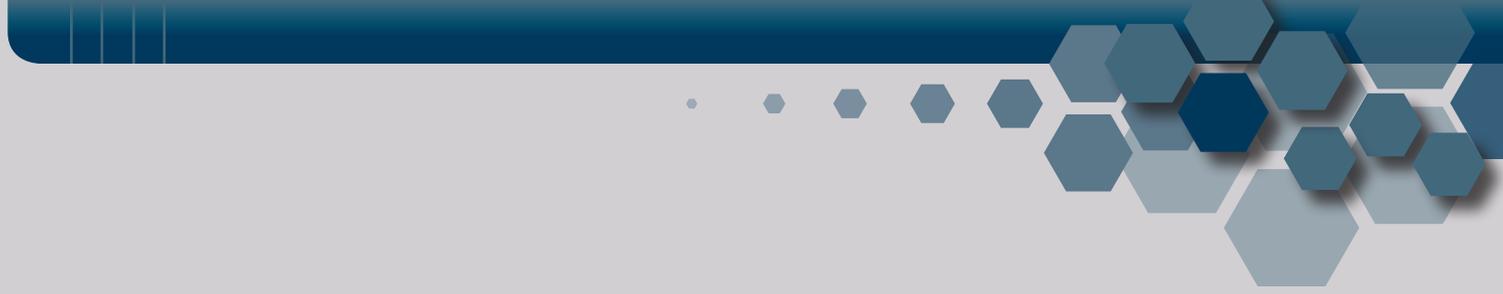
MG Richard P. Formica, former commander of the Combined Security Transition Command - Afghanistan, and LTG Kevin T. Campbell, commanding general of the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, take a break from CAPSTONE conference sessions at the U.S. Strategic Command at Offutt Air Force Base, Neb., on Feb. 3.

Photo by Steve Cunningham, Defense Department.





Lieutenant General Kevin T. Campbell, commanding general, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, was the keynote speaker at the annual membership and awards luncheon of the Air, Space, and Missile Defense Association (ASMDA) on Jan. 29. *Photo by Marco Morales USASMDC/ARSTRAT*



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# COMMANDING GENERAL THANKS

## Air, Space and Missile Defense Community During Keynote Speech

By Deborah Erhart USASMDC/ARSTRAT

HUNTSVILLE, Ala. — LTG Kevin T. Campbell, commanding general, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, was the keynote speaker at the annual membership and awards luncheon of the Air, Space, and Missile Defense Association (ASMDA) on Jan. 29.

More than 400 people attended, including Congressman Parker Griffith, 5th District, Ala., Huntsville Mayor Tommy Battle, and other key civic organization and defense industry leaders from the local community.

“In the last two plus years, ASMDA has increased science and engineering college scholarships from two to five \$4,000 scholarships annually. They have partnered with NDIA and ADAA to host a space and Missile Defense Student Day at the Space and Rocket Center where over 250 sixth-graders attended from the surrounding area, and increased support to numerous veterans programs. In addition, ASMDA cosponsored the annual Space and Missile Defense Conference that grew to an all-time record in attendance and exhibits in 2009.

“It takes quite a number of good people to pull off all of the many projects and events developed by ASMDA,” Campbell said. “You work hard to make a difference not only by ensuring our nation’s defense is the best in the world, but by contributing to our community. You are making a difference in this community.”

In addition to recognizing many of the contributors to ASMDA success, Campbell concluded his remarks by thanking ASMDA for the support provided to the space and missile defense community in its continued support to our brightest and most deserving students through scholarships, space camp scholarships, and cosponsorship of the 9th annual Adventures in Engineering Day.

“I also want to thank you for the open arms you extended to my wife, Kathy, and me as we settled into the north Alabama area. This will always hold a very special place in our hearts, because of the wonderful people. There is no friendlier place on Earth than right here in Northern Alabama,” Campbell said. ▲



# HEADQUARTERS COMPANY

## Learns Critical Urban Terrain Combat Skills in Field Exercise

By CPT Kendall C. Wells, Headquarters and Headquarters  
Company Commander, 1st Space Battalion

PETERSON AIR FORCE BASE, Colo. — As the Army continues to evolve its Counterinsurgency warfighting doctrine, Soldiers of Headquarters and Headquarters Company, 1st Space Battalion are remaining combat ready by utilizing the most recent equipment and best training environment available in today's Army.

In an effort to fully train Space Soldiers to operate in an urban environment, Headquarters Company of the 1st Space Battalion planned, coordinated, and conducted a "live fire" exercise at a Military Operations in Urban Terrain range, utilizing replica M4 carbine paintball rifles to obtain a near real effect of performing actual dismounted military maneuvers. Company Noncommissioned Officers were responsible for teaching Soldier the basics of urban operations and how to combat operate in urban terrain.

With an operations order including intelligence of enemy situation and most likely courses of action, squads of five to six Soldiers were given tasks and objectives to complete inside differing scenarios, testing their ability to react to enemy contact, ambushes, and move under direct fire. The squads were forced to implement Army warrior tasks and drills such as engaging targets in urban operations, evacuating a casualty, and breaking contact with the enemy in order to successfully complete each task and objective. Several senior Noncommissioned Officers and 1st Space Company Officers acted as opposition forces during the rigorous training.

From noisy Muslim prayers played through mosque speakers, to the low hanging power lines and bricked off courtyards, the urban training site offered an eerie feeling of a genuine Iraqi village. The training was as real as the company could make it. The objective was to put the Soldiers in situations which not only tested their knowledge of essential warrior tasks, but also their ability to assess a situation and react with the right combination of combat tactics.

At the conclusion of the exercise, several Headquarters Company Soldiers commented on the effectiveness of the training. "You had to put multiple skills together in order to successfully accomplish the mission," said SGT Matthew Olevano. "When paintballs are flying all around, and the confusion of the situation sets in, it took an intense amount of concentration to understand how to react."

SPC Gerald Genus observed, "The training gave me a chance to use real-world combat techniques that we had been taught to lead and maneuver my team through a successful mission; using paintball rifles to simulate actual small arms fire made the training fun and very realistic."

During an assignment to U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, it is vitally important for low density Military Occupational Specialty Soldiers who fill Headquarters positions to remain vigilantly familiar with the skills and tactics utilized on the front lines.

"We are doing these individuals an injustice if we fail to fully and accurately train them on all mandatory Army Warrior Tasks on a yearly basis," stated Company 1SG Steven Adams. "We must give our Soldiers the necessary skills that will prepare them to functionally operate while they are deployed in the future."

Although the exercise was proven a huge success, the Company has bigger plans in mind for the near future. In May the Headquarters Company will send a handful of Soldiers and Noncommissioned Officers to train with the 10th Special Forces Group on Fort Carson in an effort to significantly increase their level of fighting proficiency. These Soldiers will learn from the best in the business, and then return to the Company to increase their knowledge and build upon the skills they have learned.

▲



A Squad of Soldiers from HHC, 1st Space Battalion tactically maneuvers within an urban environment just after being engaged by opposition forces in an ambush.



After being engaged with small arms fire, this Squad prepares to eliminate the threat by performing a flanking maneuver. As one team engages the opposition, another team will break contact and maneuver to a position of advantage. *Photos by SSG Stephanie Weber*

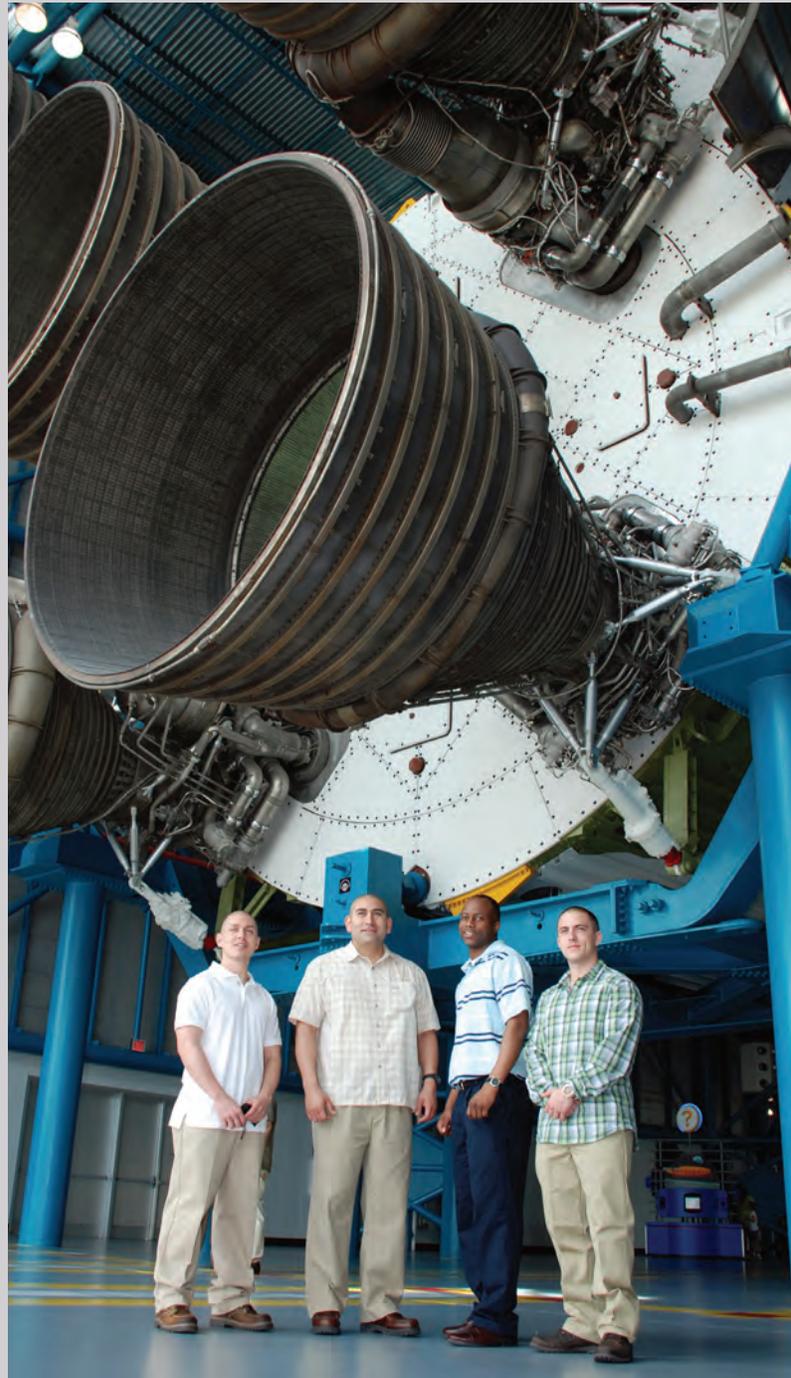




CSM Ralph Borja (center), U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, talks with David Lady (left), retired former USASMDC/ARSTRAT command sergeant major, and CSM Larry Turner (right), Afghanistan Combined Security Transition Command - Afghanistan command sergeant major, during an icebreaker at the USASMDC/ARSTRAT Senior Enlisted Leaders Training Conference held March 22-25 in Cocoa Beach, Fla. Turner is slated to become USASMDC/ARSTRAT command sergeant major upon Borja's retirement this summer.  
*Photo by Dottie White*



SMA Kenneth O. Preston answers questions following his briefing during the Senior Enlisted Leaders Training Conference. *Photo by Dottie White*



SELTC attendees pose beneath the engines of a Saturn V rocket during a visit to the Kennedy Space Center.  
*Photo by DJ Montoya, 1st Space Brigade*

# SELTC

SENIOR ENLISTED LEADERS TRAINING CONFERENCE 2010

## Promotes Ideas and Development

By Dottie White, USASMDC/ARSTRAT

COCOA BEACH, Fla. — The annual U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Senior Enlisted Leaders Training Conference took place March 22-25 here.

The conference is designed to enhance the professional development of USASMDC/ARSTRAT and the Joint Functional Component Command senior enlisted leaders. It also provides a forum for former USASMDC/ARSTRAT command sergeants major, selected nominative command sergeants major, and National Guard command sergeants major to promote a free exchange of ideas, insights and lessons learned.

The conference included a golf tournament, an ice-breaker, two days of briefings, and a staff ride to Cape Canaveral and the Kennedy Space Center. ▲



SFC Katherine Nieto tests out a piece of equipment during a break in the Conference. *Photo by Dottie White*



Attendees of the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Senior Enlisted Leaders Training Conference listen to a briefing from CSM Thomas Capel, Command Joint Task Force-82 *Photo by Dottie White*



Dr. Ron Saga served as the guest speaker at the 2010 U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Ball. *Photo by Sharon L. Hartman*

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# GOT SPACE? WE HAVE IT!

By Sharon L. Hartman, USASMDC/ARSTRAT





1st Space Brigade Commander, COL Jeffrey Farnsworth (center) and CSM James Ross (right), charge COL Eric Henderson, the next 1st Space Brigade commander, with the responsibilities for next year's ball. *Photo by Dennis E. Beebe*

Dr. Ron Sega, former NASA astronaut and under secretary of the Air Force, and current Woodward Professor of Systems Engineering, Colorado State University, and Vice President for Energy, Environment and Applied Research, Colorado State University Research Foundation, served as the keynote speaker for the 2010 U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Ball.

The event, spearheaded by the 100th Missile Defense Brigade, featured the theme "Got Space?," a query intended for warfighters on the ground. A command video highlighted the theme and underscored the command's role as a key provider of space assets to the Army as well as Joint and allied forces. In his remarks, Sega noted how far space technology and space assets have come from his earlier days to now.

Two members of the space community were also honored during the evening festivities. COL Patrick Rayermann, a pioneering member of USASMDC/ARSTRAT, and Michael Connolly, director, Army Space Personnel Development Office, were both bestowed with the Honorable Order of St. Dominic for their extraordinary contributions as space professionals.

The formal portion of the evening came to a close as the 100th Missile Defense Brigade Commander, COL Greg Bowen passed the responsibilities for next year's Ball to 1st Space Brigade Commander, Jeffrey Farnsworth, who quickly passed the sword to his soon to be successor, COL Eric Henderson.

The night was far from over though as those still up for some fun stayed and danced the night away. ▲



BG Kurt S. Story, USASMDC/ARSTRAT Deputy Commanding General for Operations takes the floor during the 2010 command ball. *Photo by Sharon L. Hartman*



BG Kurt S. Story, USASMDC/ARSTRAT Deputy Commanding General for Operations displays the Honorable Order of St. Dominic medallion as COL Timothy Coffin, former 1st Space Brigade commander, and one of the founders of the award, introduces this year's recipients. *Photo by Sharon L. Hartman*