Army Space Journal

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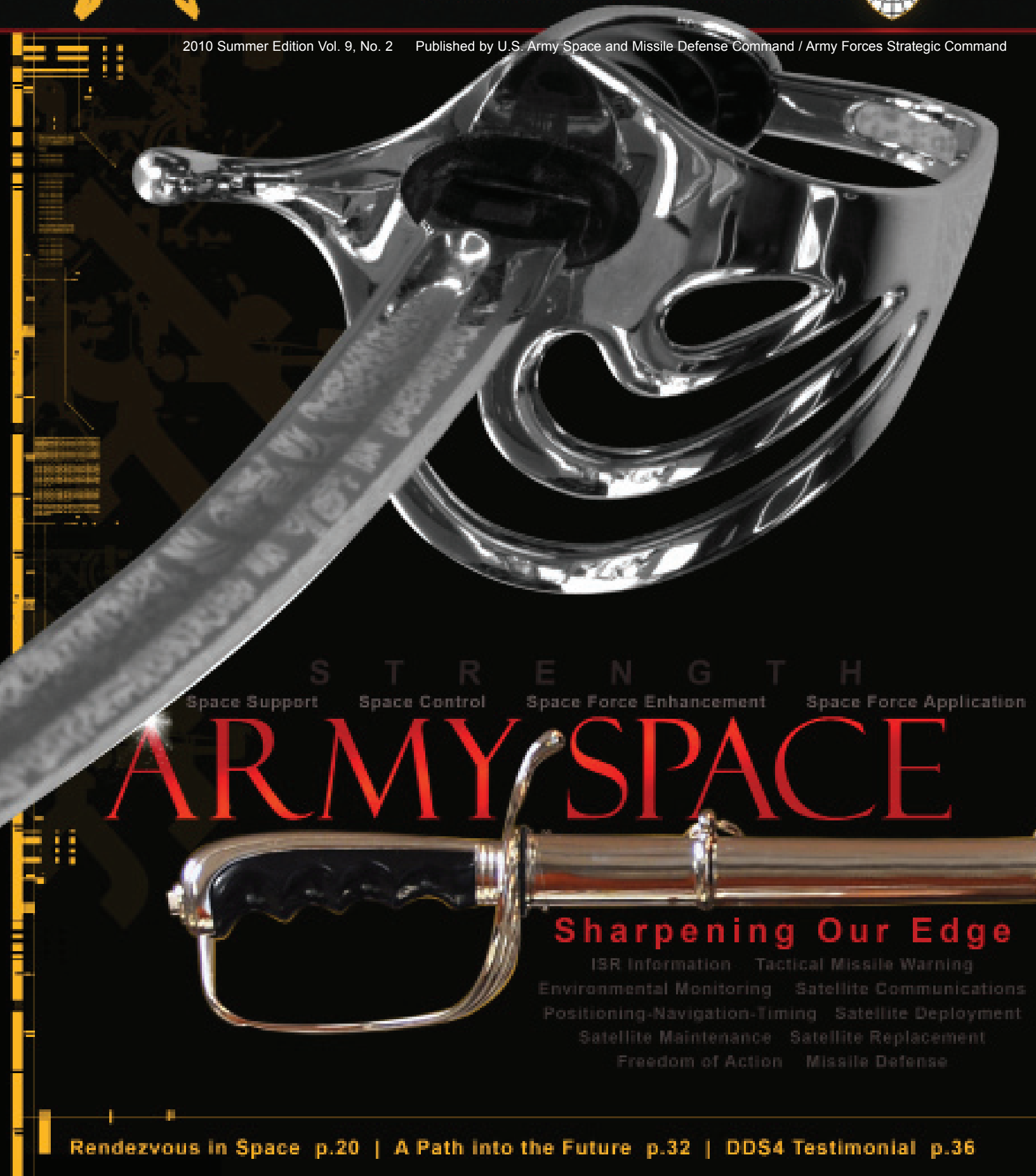

S T R E N G T H

Space Support Space Control Space Force Enhancement Space Force Application

ARMY SPACE

Sharpening Our Edge

ISR Information Tactical Missile Warning
Environmental Monitoring Satellite Communications
Positioning-Navigation-Timing Satellite Deployment
Satellite Maintenance Satellite Replacement
Freedom of Action Missile Defense

Rendezvous in Space p.20 | A Path into the Future p.32 | DDS4 Testimonial p.36

Explaining Space Power's Strength

On the birth of magazine cover art – or, better, on the birth of a magazine focusing on the theme of making U.S. Army space efforts better: I like power. And, the saber represents the strength that produces that power – strength coming to our nation through our military and commercial space-based capabilities. This translates to the actual effects or results that our space capabilities provide our military forces and it is largely up to the space community to deliver those effects. Sharpening that craft – making more power or strength that comes from space – is the point. The work in progress on the magazine cover created some puzzlement, judging from the curious looks on the faces of visitors entering my office to find my saber dangling from the ceiling. Beauty is in the eye of the beholder. Art is supposed to say many things to many people. So we'll let the readers the judge the final product on whether or not we successfully conveyed our intent.

As for my article Rendezvous in Space: Looking in on Military Space, the genesis goes to many discussions ongoing in the military space community regarding the priority – or recognition of its value – given to space in the military context. Mostly, these discussions center on the perceived need to create a centralized military service, branch or corps for space similar to how the Air Force evolved and ultimately obtained independence from the Army in 1947. The Rumsfeld Space Commission gave the idea its push start in 2001 by predicting a Pearl Harbor type event in space that would exploit vulnerabilities. This side of the argument is further framed by the Allard Commission's finding in 2008 and Congressional testimony from the Government Accountability Office this year which both highlighted potential consequences. Essentially, all the reports over the span of years present a familiar message that dispersed organization and management for space limits its overall contribution.

It is an exciting idea but, frankly, one without much depth in the discussion about it. Interestingly, the vulnerabilities about space revealed by outside studies are contrasted by another key element in the discussion having to do with an internal view of the value of space to military operations. The commanding general of U.S. Air Force Space Command, General Robert Kehler, articulates it best when he says space is in the "fabric" of military operations. Further, he says space capabilities give the military its "ability to see with clarity, communicate with certainty, navigate with accuracy, strike with precision, and operate with assurance." Others have asserted that space has changed the nature of war – it has not, but more accurately it has definitely impacted the conduct of war, but not war's violent nature. A final point on this aspect is that the general military population does not fully understand, realize, or appreciate how much it relies upon space to fight as we do.

Interestingly, this brings us back to the comparison of the space power today and air power yesterday situations. The contrast in the two sides of the space organization argument is significant, raising some serious considerations about both. Folks on the re-organization side indicate that growing dependence upon space as technology speeds forward compounds the problem. Folks on the other side indicate that this growing integration of space into military operations, despite concerns about the organization, demonstrates the resilience in the military space community in overcoming obstacles in order to deliver what is needed. This is somewhat similar to the air power debate prior to WWII – both sides essentially said the same points with a major difference. Air power enthusiasts – BG Billy Mitchell being the most recognized – seemed to oversell what air power could do. His overall thesis hinged on the idea that giving air power equal footing with land and sea power would result in somehow lessening war's impact – giving the military the ability to end war quicker.

While this level of dogma is not part of today's discussion with space power – thankfully – it does raise an interesting parallel. Too often we in the military space community see the value we bring to the nation in terms of the independent capabilities delivered. We routinely talk about early missile warning, satellite communications, intelligence-surveillance-reconnaissance, precision-navigation-timing and environmental monitoring. Rarely do we as a community articulate the collective value of space in the terms of a theory for what space provides to the nation – an explanation for how space aids military operations on the levels of air, land and sea powers. Reviewing Mitchell's assumptions about air power prior to WWII shows that his assertions about air power's abilities were largely overstatements and, perhaps, too much marketing.

While it is good that the space community is not overselling the abilities derived in space power, we are absent a clearly stated theory for space power. Author Jim Oberg says space power is a "coercive and persuasive ability … to politically influence the actions of other states and other kinds of players, or to otherwise achieve national goals through space activity." Further, Oberg explains that a space power theory must show "how and

michael.howard@smdc-cs.army.mil

why space resources work with other factors to contribute to implementation of policy and achieve defined goals." A George C. Marshall Institute Fellow, Dr. John Sheldon, lays out a blueprint for establishing a space power theory in his book on the topic to be published later this year. He places space power in simple, equal terms to the other domains: The "ability in peace, crisis, and war to exert prompt and sustained influence in and from land/air/sea/space."

Another critical point about the need to define space power in theoretical terms comes from Sheldon's manuscript. He quotes Colin Gray: "A theory of space power should provide a common framework from which all can refer and a conceptual means by which space power is exploited to its full potential." The absence of this framework in our discussion about the value of space is notable. A reason for this may well be to avoid the overpromise that air power theorists made, yet the void and need for it remains apparent. A basis for this theory appears to be along the lines of whether or not space is or should be more than a critical enabler. A significant finding is that air power prior to WWII was seen only as an enabler despite the assurances of theorists that it had the potential to deliver significant contributions to war's victory.

Space power lacks this clarity in both theory and fact. It was only after WWII that air power theory was ultimately proven, resulting in the creation of an independent service for air. Of course space has not proven itself to the same degree as what air power has done. The space power context may provide some explanation for the limited vision, though, in the current discussion. The destructive capability of military missiles and warheads in space was very clear from the very beginning of space power development in the United States and Soviet Union. Equally, there seems to be a lingering viewpoint that space is a sanctuary for military purposes as President Dwight Eisenhower established it in 1957. A previous commanding general of U.S. Air Force Space Command, Gen. (ret.) Lance Lord, put it best: "Space is a (global) commons" and a nation has "the inherent right of self defense to operate in the medium just like it would at sea or in (the) air."

So, that explains at least my perspective of the cover art for this edition of the ASJ. In the end, comparing early day air power and space power models in my article reveals several key points to consider in determining the space role in the military power equation. The idea for this comparison – and, ultimately, for my Army War College paper on the topic – came from discussions at the 2009 U.S. Army Space Cadre Symposium. The hope is that these points and those found in the other articles in this publication can be used to stimulate further, deeper discussion within the military space community. Special thanks to mentors retired U.S. Army Colonels Frank Blakely and Todd Day for their help with my article.

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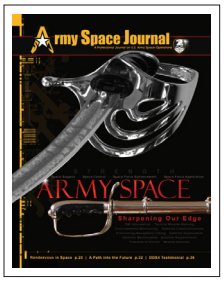
Mike Howard on Facebook

Mike Howard Here's the cover I like so far ... any thoughts?



ASJ

14 hours ago · Comment · Like

Suzanne Spitzfaden Nage Not making the connection between a saber and space, but I'm sure if you like it, it has to make sense.
12 hours ago · Comment · Like

Jim Noble Sorry Mike I was thinking the same thing.
11 hours ago · Comment · Like

Mike Howard Saber ... military might or power or strength. Maybe too loose a connection. Do I need to identify what the symbol means?
11 hours ago · Comment · Like

Jim Noble Yes and something that ties in space.
8 hours ago · Comment · Like

Diane Gerig How about a sabar cutting through a star or the moon or a space ship or something that makes sense with the title?
7 hours ago · Comment · Like

Sandi Howard Lillard I connected the saber with the "sharpening our edge" comment...
6 hours ago · Comment · Like

Write a comment ...

LTG Kevin T. Campbell
Commanding General,
U.S. Army Space and Missile Defense Command/
Army Forces Strategic Command

Staying on Our Game

The summer 2010 edition of the Army Space Journal has an outstanding lineup of articles that address the theme of, "Army Space – Sharpening Our Edge." Analogies point to the need to remain sharp – stay on our game. Sharpening an edge connotes a single focus whether its sharpening scalpels or sharpening axes, depending on the amount of precision needed. As the articles in this issue indicate, we need to consider multi-edged tools and agile, multi-faceted thinking.

An excellent article in this edition that discusses the importance of relational training is by COL Gregory Bowen, Commander, 100th Missile Defense Brigade (GMD). He states, "I believe it is an operational imperative that we institutionalize space training into the Ballistic Missile Defense System training curriculum. From my perspective as a brigade commander, I want my missile defense crews to understand the operational implications of space on the Ballistic Missile Defense System."

That is an excellent statement and one that calls to mind the White Paper by GEN Michael Moseley, the former Chief of Staff of the Air Force. In the 2007 paper, GEN Moseley states that throughout history militaries that failed were a result of a "failure to anticipate, a failure to learn, and [a] failure to adapt."

> **" I believe it is an operational imperative that we institutionalize space training into the Ballistic Missile Defense System training curriculum. From my perspective as a brigade commander, I want my missile defense crews to understand the operational implications of space on the Ballistic Missile Defense System."**
>
> COL Gregory Bowen
> Commander, 100th Missile Defense Brigade (GMD)

I believe we must anticipate, learn, and adapt to the rapidly changing environment which include the domains of space and cyberspace. We can no longer think in terms of sharpening a single edge; we must consider multi-edged instruments in the Warfighters tool box. This means that Army leaders need to understand that space and cyberspace are inextricably linked and we must understand how one enables the other, where the weak points exist, and what to do if one fails. And, as COL Bowen elucidated, we must determine how space and cyberspace enable our individual specialties.

Next, is a treatise on Space Power written by Michael Howard, USASMDC/ARSTRAT public affairs officer in Colorado Springs, Colo. In his Army War College paper, Mr. Howard postulates some interesting ideas about BG Billy Mitchell's theories on air power as it relates to space power and why there isn't a need right now for a separate space branch. The paper is well-written with plenty of supporting notes.

The commander of 1st Space Battalion provides an article and an OP-ED for careful consideration. LTC J. Dave Price, commander of 1st Space Battalion, puts forth ideas for possible mission and structure changes for 1st Space Battalion. LTC Price's article suggests creating a second space battalion to separate out the missions of Space Force Enhancement operations and Space Control and Special missions between the two battalions. Given the emerging importance of space-based assets, LTC Price's ideas are worth reading and discussing.

Returning to COL Bowen's article, he explains how Space plays a key role in missile defense. In fact, Space plays a role in enabling many units to continuously assess the situation, develop the situation, and win on the battlefield. Space provides the enablers while cyberspace provides the network that links the assets to the Warfighters.

An article that truly is about combining space and cyberspace is submitted by USASMDC Future Warfare Center's Battle Lab. The article by, Mike Florio, David Hotop, Steven Groves, Kirk Davis and Rich Farrell, provides information about a Joint Capability Technology Demonstration for IRIS (Internet Protocol Routing in Space). The technology demonstration seeks to find "innovative space communication capabilities that could close the digital divide."

I am very interested in the outcome of the IRIS demonstration. Our current deployment schemes are much different than they were during the Cold War. Compared to cold war deployment schemes of some 100 square miles assigned to a brigade for responsibility, today's Brigade Combat Teams operate within a sector about the size of New Jersey. Operating in such large swaths of terrain requires a net centric capability that provides access to information and persistent communications. An internet router in space might be the answer. I look forward to future articles detailing the progress of the analysis.

Lastly, CSM Ralph Borja's article addresses gaining and maintaining a high standard. As he states, "we must train to an extremely high standard, and once we've achieved it we must exercise constantly in order to maintain proficiency – to reach the point where we can't get it wrong."

This is CSM Borja's last article as the command sergeant major of USASMDC/ARSTRAT as he gets ready to retire. His tour of duty here is emblematic of his 30 years of service. It has been marked with a singularly outstanding devotion to duty, a love for Soldiers, and an unfailing allegiance to country. CSM Borja will be dearly missed as we wish him and his family fair winds in their retirement.

As mentioned earlier, there are many excellent articles worth reading in this issue of the Army Space Journal. I appreciate the superb input of articles that help generate new ideas and pointed discussions in order to help our profession grow. I suspect there will be plenty of topics to discuss at the Army Space Cadre symposium in August.

"SECURE THE HIGH G

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

Training to Standard

CSM Ralph Borja addresses a candidate as CSM James Ross, 1st Space Brigade watches, during the Noncommissioned Officer and Soldier of the Year Competition. *Photo by Carrie David Ford*

We must train to an extremely high standard, and once we've achieved it we must exercise constantly in order to maintain proficiency – to reach the point where we "can't get it wrong."

This issue of Army Space Journal focuses on "Army Space – Sharpening Our Edge." What exactly does it mean to sharpen our edge? One definition of sharpen reads: make more intense, stronger, or more marked, while edge can be defined as: a margin of superiority; an advantage. So, you can infer that sharpening our edge means strengthening our superiority or advantage.

A few years back, the NFL Network ran an ad centered around the quote "Amateurs practice until they get it right … Professionals practice until they can't get it wrong." The ad shows NFL players practicing a play over and over and over again so that on game day the play runs perfectly.

While the message centered on professional football, I feel it is very much relevant to the world of the space and missile defense professional. Our mission is to provide the Warfighter with space enablers and to warn the Warfighter of impending missile threats on the battlefield. We are also given the responsibility for defending the United States from ballistic missile attack by rogue nations.

Our missions are fast-paced, often requiring immediate response. When the time comes to respond to a missile threat, or to correct an anomaly on a satellite communications system, we must act – we must respond based upon our training. We will not have time to ask; did I prepare enough, train enough, practice enough to do it right? We must rely on our training and respond.

That's why professionals work until things become habit or automatic. Professionals also strive to develop error proof processes, constantly working to refine the process so things don't go wrong when time is short and response is critical.

In our profession, the profession of arms, centuries of experience has shown us that you get better through training and carrying out exercises. Within the split-second world of space and missile defense, this axiom is doubly true. We must train to an extremely high standard, and once we've achieved it we must exercise constantly in order to maintain proficiency – to reach the point where we "can't get it wrong."

Having spent most of my career in foxholes and trenches as a light fighter and special operations, I learned to appreciate the importance of maintaining continual situational awareness, of precisely striking an intended target, and of having reach-back communications capabilities. Three years at USASMDC/ARSTRAT has helped me understand the process of obtaining these capabilities and providing them to the Warfighter. I've also learned to appreciate the tremendous effort required to persistently and consistently provide these capabilities to the Warfighter.

As I end my tour of duty and relinquish my responsibilities as USASMDC/ARSTRAT Command Sergeant Major, I want to thank our civilians who contribute and work tirelessly in our research, development and acquisition areas to develop new systems and find new ways to assist the Warfighter. I now understand that you can't solve the problem of "looking around the corner or into caves" by shopping at Wal-Mart. What you do is of enormous consequence to our Warfighters. You have my respect and support in your continuous endeavor.

I also want to thank the Soldiers who work tirelessly to provide space enablers and missile warning to the Warfighter and missile defense to our nation and to the families that support them. Your sacrifice and efforts make a difference. Serving as your Command Sergeant Major has been a privilege and an honor.

"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

Space Cadre, the Warfighter's "Samurai Sword"

The authentic Japanese sword is special. It is carefully made from specialized metal which consists of a hard, high carbon steel and a tough, low carbon steel to take advantage of the best attributes of both. The high-carbon steel is harder and holds a sharper edge, but is brittle and may break in combat. The low-carbon steel is more malleable, making it able to absorb impacts without breaking, but it cannot hold a sharp edge. The two steels are forged together and heated and hammered over a period of several days. Then the steel is folded and hammered up to 16 times to squeeze the impurities out. This lamination effect strengthens the blade (hard steel) while simultaneously keeping it soft enough (soft steel) not to break on impact. The balance has to be just right.

The sword maker coats the blade with several layers of wet clay slurry, a special concoction unique to each maker. The edge of the blade is coated with a thinner layer than the sides and spine of the sword. It is then heated to an exact temperature and quenched in water or oil. The clay slurry provides heat insulation so that only the blade's edge will be hardened with quenching. This also gives the blade its unique curve which adds to the cutting power.

After the blade is forged, it is sent to be polished by hand. The polisher uses finer and finer grains of polishing stones until the blade has a mirror finish. This process can take between one to three weeks and makes the blade extremely sharp and reduces drag making it easier to cut with and more lethal.[1]

The three-step process used to produce these ancient instruments of war can also be applied to members of the Space Cadre. For example, "made from two kinds of steel and with a special technique" could translate into combining space operations technical training with basic branch military skills and understanding of basic warfighting principles. The "special techniques" of deployments and the practical and personal combat experience act as the hammer and anvil to force the impurities out and to form a strong and flexible space professional. The special slurry to make the instrument's edge strong and lethal with a unique curvature might translate into a mixture of space operational assignments at different organizational levels that can sharpen the professional's space skills and instill the seasoned judgment to advocate for space capabilities and to know when to apply them for maximum effect. Finally, education and training polish the space Warfighter's skills and acumen like the finer and finer grains of polishing stones create the mirror finish on the samurai sword.

It might be interesting to think of the approximately 2,500 space warriors as the "samurai swords" of the Army bringing their own cutting edge capabilities to the battlefield to empower and enable joint warfighters. But it is more important to consider how to take care of the Space Cadre as one would a samurai sword so that the Cadre remains relevant and keeps its sharp edge.

If the capabilities delivered by space systems truly enable warfighters and their fighting systems, then it is imperative that either the systems remain accessible or that a backup plan is in place to provide the capabilities.

Tomorrow's Mission

The 21st century Army must continue to prevail across the full spectrum of conflicts, a spectrum that stretches from stable peace on one end to unstable peace and counterinsurgency operations and all the way to outright war on the other.[2] In an era of persistent conflict, American military forces will operate under conditions of uncertainty and complexity. The units will maneuver over larger swaths of territory than ever before and will need to be versatile, expeditionary, agile, lethal and sustainable.

The past eight years have taught the Army that it must be able to operate in a decentralized fashion. Our current enemy operates within a decentralized manner – this means that we must as well. Missions in the foreseeable future will be carried out more often than not at the lowest levels with fewer Soldiers. So, while the objective may be set by higher headquarters, the execution and success of the mission will be decentralized and will fall to units or Soldiers down the chain.[3]

As a result, small-group leaders need the assured communications, ISR (intelligence, surveillance, and reconnaissance), and real-time situational awareness, capabilities that formerly were located at the higher headquarters. This need to command, control, and inform forces at subordinate levels across greater distances implicates complex and multi-tiered networks on which information travels. It also impacts the space-based assets and their enabling capabilities, the ground stations that speed satellite data on its way, and the cyberspace that connect the two. Space and cyber capabilities will continue to enable almost everything the Army does and ensuring that they are available will tax space operators.

The Intersection of Space and Cyberspace

Space and cyber domains are each global warfighting domains in which distinctive space and cyber military activities are conducted. Both [space and cyber] generate effects in and through their own domains, and across the other domains (e.g. air, land, and maritime). Cyber and space share networked systems and associated physical infrastructures.[4]

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. For example, satellite communications (SATCOM) present a potential avenue of approach for a computer network attack. Hackers could use such access to exploit the confidentiality or to degrade the availability and integrity of the system. A computer network attacks targeted against SATCOM systems could affect a capability carried on the system, e.g., missile warning, which in turn could affect the availability of the transmission capabilities and the mission.

Relevance

Uncertainty and complexity and small unit operations supported by netcentric assets susceptible to cyber attacks and interference provide an opportunity for space professionals to display their relevance. If the capabilities delivered by space systems truly enable warfighters and their fighting systems, then it is imperative that either the systems remain accessible or that a backup plan is in place to provide the capabilities. As discussed in the last Journal, I expect space operators to mitigate any loss of space assets by using the P.A.C.E. (primary, alternate, contingency, and emergency) process to delineate the space systems that tie into the unit and to designate the backups should the system fail.

A corollary to the P.A.C.E. process is the Joint Spectrum Interference Resolution process.[5] This process has been designed to require units and Soldiers who experience meaconing, electromagnetic intrusion or electromagnetic jamming to complete an interference report and attempt to resolve the problem at the lowest level feasible. This necessitates that one recognize that systems are being interfered with. The next step is to search for, discover, and mitigate it and the system vulnerabilities.

Any interference needs to be reported. The Joint Spectrum Interference Resolution process adds to the overall situational awareness on the cyber electromagnetic battleground, which includes space. Too often interference is wished or wargamed away as "another blue-on-blue event" and it goes unreported. As a result, no action is taken. We must change our old habits and investigate every incident of interference and treat them as hostile until proven otherwise. In cases of suspected hostile interference with satellites, ground control sites, and associated user terminals, the report is forwarded up the chain to the Joint Spectrum Center or to U.S. Strategic Command for further action.[6]

Samurai Sword >> page 16

Samurai Sword >> From page 9

Why does this process matter? As already mentioned our military is increasingly reliant on cyberspace, space, and electromagnetically enabled capabilities. If the equipment using or delivering those capabilities doesn't work as it should, our ingenious Soldiers will find a work around. That's good news and bad news. The good news is that they are able to figure out what the alternate, contingency and emergency[7] backups are and still enjoy mission success. The bad news is that the Soldier-solutions may be more vulnerable to interception and disruption. If the interference is not reported and the causes are not analyzed, technically sound, standardized solutions to the problem at the enterprise level cannot be developed. Commanders and their signal officers need to enforce reporting any interference through the Joint Spectrum Interference Resolution process, and space professionals must play a part in and support that effort. Doing so can help keep our space-based systems accessible, pinpoint system vulnerabilities, and mitigate their loss. This proactive approach combined with the forensics of Joint Spectrum Interference Resolution will help keep space assets, space operations and space operators relevant.

Maintaining the Edge

Professionals who want to maintain their relevance, their edge, and the acute ability to ply their trade need not look further than the professional development opportunities offered within the military and the Army specifically. For example, as already mentioned, the myriad of space-related assignments at various unit levels are like the special slurry that can sharpen one's skills. The variety hones one's skills as well as broadens one's vision and appreciation of what the possibilities are for the space operations field. By serving in different positions one can develop important partnerships with fellow Army warriors, space professionals from the other Services, and industry specialists that can lead to discovering ways to move Army space operations forward. Therefore, seek out a variety of jobs in a variety of organizations.

Seek other avenues and venues for educating and training. This is another way to whet one's worth. For example, one FA40 starts the new space operations PhD program this summer. Another is starting his Training with Industry at Johns Hopkins University Applied Physics Lab (or Lockheed-Martin). They saw the opportunities and applied for the programs. Like Nike says, "Just do it."

Seek out and make time during or between assignments to take advantage of the institutional training offered by U.S. Army Space and Missile Defense Command/Army Forces Strategic Command's Future Warfare Center (FWC) schoolhouse: FA40 senior course via the U.S. Air Force National Security Space Institute's Space 300 Course[8], the Tactical Space Operations Course that support Operation Iraqi Freedom and Operation Enduring Freedom rotations, and the 3-week Space Operating System Course for training on space software analytical tools. This assumes that most of the Space Cadre will have attended either the 10-week FA40 Space Operations Officer Qualification Course or the Army Space Cadre Basic Course. If you don't have one of those courses under your belt, get it.

FWC Directorate of Combat Developments is working on a new course designed for senior FA40s that is geared to further polish their abilities. It will be designed to be a "capstone" class much like those offered by the senior service college. The ideas for course content are still being debated and considered, but some of the possibilities include dialogue with the USASMDC/ARSTRAT commanding general and deputy on vision for space operations and capabilities, instruction on the Army Space Enterprise and how the Army runs, and exchanges with some of the most senior, seasoned Space Operations Officers. This will be an outstanding course. Look for it in the coming year.

Conclusion

Each sword crafted by a master with great care using special materials and techniques. Each sword with the cutting power to sever bone. Each sword unique and vital to the success of the samurai warrior who faithfully serves the emperor.

Much like the samurai sword, each space professional is assessed and educated with great care using special materials and techniques. Each professional has the power to bring cutting edge, space-enabling capabilities to defeat the adversary across the full spectrum of conflict. Each professional is unique and vital to the success of joint warriors who faithfully serve the Nation's call.

Basic military skills, technical skills, assignments, education, training, and a continuous process of professional growth meld together to create a space professional that is sharp and focused on assuring space capabilities for Warfighters.

Endnotes

1 http://en.wikipedia.org/wiki/Katana and http://www.samurai-sword-site.com/Japanese-Sword-Making.php

2 The Army Capstone Concept, TRADOC Pamphlet 525-3-0, 21 December 2009, 10.

3 General Martin E. Dempsey, "The Army Capstone Concept and Institutional Adaptation," Landpower Essay, No. 10-1, The Institute of Land Warfare, March 2010, 3.

4 USASMDC/ARSTRAT D3SOE Warfighter Seminar Final Report, 29 May 2010, 19.

5 This requirement is spelled out in Joint Spectrum Interference Resolution, CJCSI 3320.02D, 9 January 2009.

6 Joint Spectrum Interference Resolution, CJCSI 3320.02D, 9 January 2009, A-4.

7 PACE – primary, alternate, contingency, emergency. As a standard operating procedure, units should identify their critical systems (weapons, communication, logistical, medical, etc.) After identifying the critical systems, they should designate the alternate, contingency, emergency backups should the primary system be disabled. PACE should be published within the unit.

8 The Army Space Personnel Development Office manages the allocations for this course rather than FWC DCD.

Dr. Steven L. Messervy
Deputy Commander

Research , Development and Acquisition

Enhancing Capabilities

See First, Know First, and Act First

The theme for the summer 2010 edition of the Army Space Journal is "Army Space – Sharpening Our Edge." Given our continuing efforts to battle insurgency and terrorism, I feel the theme is both timely and important.

The phrase "sharpening our edge" can be used in many different contexts. Some will view the concept as a commitment to training and exercises in order to "stay sharp." Others will view it as providing the Warfighter with the best possible tools available to support today's era of persistent conflict. Another context might be to provide new and improved "arrows" for the Warrior's quiver – to provide methods that allow the Warfighter to continually see first, know first, and act first.

U.S. Army Space and Missile Defense Command/Army Forces Strategic Command (USASMDC/ARSTRAT) continually strives to provide the Warfighter with new and innovative means for meeting their requirements for persistence, assuredness, and responsiveness from space-based systems. Persistence – there where and when it's needed. Assuredness – knowing the capability will be there. Responsiveness – tasked in real-time for rapid delivery of information to the Soldiers in contact.

These three capabilities; persistence, assuredness, and responsiveness have long been foundational attributes of space-based assets. Unfortunately, these attributes apply more to the strategic needs of the nation than they do to the small units actually in contact with the enemy. At USASMDC/ARSTRAT we are working on different approaches for providing space-based and space-like capabilities to the Warfighter.

We believe the Long Endurance Multi-Intelligence Vehicle has the potential to provide small units with the persistence, assuredness, and responsiveness they so greatly need while operating in hostile environments and inhospitable terrain.

One system that holds great promise is the Long Endurance Multi-Intelligence Vehicle. The vehicle is a football field-sized hybrid airship that will be capable of providing multiple/exchangeable payloads to support the Warfighter. Several different existing payloads will be integrated for the vehicle. Depending upon the current mission requirements, payloads may be exchanged to provide optimum support to the Warfighter. The Long-Endurance Multi-Intelligence Vehicle's payloads include full motion video, ground moving target indictors (radar), data downlink, signal intelligence, and communication relay. These payloads will be responsive to real-time tasking from the units being supported, and will provide the ability to literally sit and stare at a location for weeks at a time, while also providing beyond-line-of-sight communications capabilities.

The requirements for this program come from a special intelligence, surveillance and reconnaissance Task Force set up to improve these capabilities across the Office of the Secretary of Defense. The Long Endurance Multi-Intelligence Vehicle design requirements include the capability to operate at 20,000 feet above mean sea level while providing a 2,000 mile radius of action. Endurance requirements call for 21-day on-station availability, and the vehicle will provide up to 16 kilowatts of electrical power for payload(s) and have a payload weight of 2,500 pounds. The hybrid airship will require only a short runway, and will carry several different sensors at the same time. The vehicle will be a recoverable and reusable multi-mission platform. It can be forward located to support extended geostationary operations from austere locations and capable of beyond-line-of-sight command and control.

We believe the Long Endurance Multi-Intelligence Vehicle has the potential to provide small units with the persistence, assuredness, and responsiveness they so greatly need while operating in hostile environments and inhospitable terrain. At the tactical level, vehicle may also provide the capability to flex and bend our communications and intelligence, surveillance and reconnaissance architectures to meet real-time requirements. The system may also serve as an affordable, viable option, for rapidly complimenting our very capable space systems if they are unavailable or denied.

To develop the Long Endurance Multi-Intelligence Vehicle concept, USASMDC/ARSTRAT has entered into an agreement with Northrop Grumman for a vehicle technology demonstrator. This five year agreement provides for the design, development and testing of a long-duration hybrid airship system within an 18-month time period and subsequent transport of the asset to the Middle East for military utility assessment. If the program meets requirements, there is an option of procuring two additional airships.

The Long Endurance Multi-Intelligence Vehicle was awarded as an Other Transaction Agreement. "Other Transactions" for Prototype Projects are called agreements because they differ from a traditional Federal Acquisition Regulations contract because many of the federal laws and regulations governing procurement contracts are waived. An Other Transaction Agreement approach allows the Army flexibility to partner with companies or academia that does not normally do business with Department of Defense. These companies are referred to as non-traditional defense contractors. "Other Transaction Authority" is granted under Section 845 of Public Law 103-160 (10 U.S.C. 2371 note).

At USASMDC/ARSTRAT, we are continually looking for new ways to support the Warfighter. We strive to find faster and more cost-effective ways and means to deliver support to the lower echelons. Our efforts are clearly focused upon supporting the Warfighter, and we are resolute in our willingness to explore alternatives that best support the small unit conducting the close-in fight. The Long Endurance Multi-Intelligence Vehicle holds great promise for meeting these goals. In effect, sharpening the Warfighter's edge by providing an enhanced capability to see first, know first, and act first.

"SECURE THE HIGH G

COL Bruce Smith
Director
Directorate of Combat Development
Future Warfare Center

10 Years Later
Look How Far We've Come

This is my last column in the Army Space Journal as the U.S. Army Space and Missile Defense Command Director of Combat Development. During the past four years I have had the privilege of working with the tremendous people of DCD shaping combat and force development, as well as institutional training for the Space and Ground-based Midcourse Defense mission areas. For this last article I decided to look back over the past ten years that I have been a FA40 and document some of the significant Doctrine, Organization, Training, Leader Development, Materiel, Personnel and Facility milestones in the evolution and advancement of Army Space.

Ten years ago the Army designated its Space Proponent and began the development and expansion of operational space capabilities. Prior to the summer of 2000 space forces consisted of Army Space Support Teams and Joint Tactical Ground Station detachments, which were Table of Distribution and Allowances organizations. Institutional – level space training did not exist nor did Army Space Doctrine. Despite the fact the Army had an operational headquarters - U.S. Army Space Command - space operations within the Army were fledgling and immature. Officers assigned to Army Space at that time talked about "normalizing" or "operationalizing" space. Space systems and organizations were considered exotic and were not included in the mainstream Army's thoughts or plans. Rather than being seen as an integral part of the force enabling and

We cannot fight today across extended distances on a noncontiguous battlefield in an operational complex environment without space-enabled support.

multiplying combat power, space was viewed as something outside the regular Army. In the ensuing decade thoughts and perceptions, throughout the Army, reference the utility and value of Space Forces has shifted one hundred eighty degrees. Today the majority of leaders and Soldiers do not give space-enabled capabilities much thought; by in large space-enabled capabilities are integrated into other Army architectures and systems. Space in many ways has moved from the exotic to the mainstream. Most Soldiers recognize the vital role space units, systems and capabilities play in combat, combat support, and combat service support operations. Space is integrated and "operationalized" into most facets of operations to include fires, communications, maneuver, intelligence, and sustainment. Daily in both Afghanistan and Iraq, as well as around the world, Soldiers are using and are reliant upon GPS satellite communications, space-enabled theater missile warning, and space situational awareness systems. Today Space Operations Officers no longer talk about "normalizing" or "operationalizing" space – it has been accomplished during the combat operations of the last eight years.

DOTMLPF ACTIONS

The first step in "operationalizing" space was the Army's decision to create a Space Operations career field. Prior to the creation of the Career Field Designation process and the stand up of the FA40 Space Operations Officer the Army selected Soldiers to serve in U.S. Army Space Command in branch immaterial assignments. After several years the Soldiers would change duty stations and return to their basic branches; Signal, Military Intelligence, Air Defense Artillery, Aviation. While some select number of officers would serve in several space assignments, the vast majority of Soldiers would never return to serve in a space-related assignment again. The Army recognized the tremendous experience being lost and the detriment to space operations that this assignment policy was causing. Standing up the FA40 career field gave the Army the opportunity to develop a cadre of space professionals, who over the course of a career of sequential assignments grew in their competence, and in turn improved space-related operations.

The second major step occurred shortly afterward in the fall of 2000; the Army began what is known as the Headquarters Department of Army Space Force Management Analysis. The purpose of the Force Management Analysis was to develop unit structure for space forces, retiring the Table of Distribution and Allowances, and documenting the forces on Tables of Organization and Equipment, like every other operational force in the Army. The initial Table of Organization and Equipment structures were approved in July 2002, and contained designs for the Space Battalion, and Theater Missile Warning Detachments. The following year Headquarters Department of the Army approved the 1st Satellite Control Battalion design, which became the 53rd Signal Battalion. Headquarters Department of the Army later resourced the 1st Space Battalion Headquarters and Headquarters Company, an Army Space Support Company, five Active Component and four U.S. Army Reserve Space Support Teams, a Commercial Exploitation Team, and a Theater Missile Warning Company for fiscal year 2004 activation. In fiscal year 2006 the Headquarters and Headquarters Company, 1st Space Brigade and Space Control Company Headquarters were activated. With Army modularity, we also saw Army Space directly integrated into operational forces through the redesign of Army Service Component Commands, Corps and Divisions and the inclusion of Space Support Elements to those organizations' Modified Tables of Organization and Equipment. Organizing space forces on Tables of Organization and Equipment brought recognition of the legitimacy and importance of the space mission to the Army, as well as providing the sustainment capabilities, readiness reporting, and command and control measures that previously had not existed.

In addition, the Army has further "operationalized" space by enhancing and developing new space-related systems and equipment. For example, JTAGS systems have continued to be upgraded in the past decade and today provide enhanced theater missile warning capabilities. New antennas, processors, and satellite feeds have significantly increased Joint Tactical Ground Stations' value to the theater commanders, such that they all continue to support the forward stationing and upgrade of these systems. During this same time the Space and Missile Defense Battle Lab developed and fielded the Army Space Support Team – Tactical Set to both Army Space Support Teams and Space Support Elements. The Army Space Support Team – Tactical Set has brought space planning, communication and production capabilities to Division, Corps and Army Staffs, further "operationalizing" space by pushing space-related products and services down and forward to tactical-level units.

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The Army Space Support Team-Tactical Set will not remain in the inventory, after the ongoing war concludes, but is scheduled to be replaced by the Distributed Common Ground Station – Army which will have greater computing power, improved interoperability, and enhanced space planning tools. Future Army Space Support Team and Space Support Element members will be better equipped and better enabled to provide operational space planning and effects to maneuver forces.

Two other very significant factors that have contributed to "operationalizing" space include expanded space-related training activities and doctrine development. On June 13, 2001, fourteen FA40s began the first ever Space Operations Officer Qualification Course. The first course was seven weeks long and was taught by a variety of government Civilians and support Contractors. Today the course is ten weeks long and is taught in partnership with the National Security Space Institute in a state-of-the-art Army Space classroom. In addition to the basic space curriculum, students now receive training associated with Special Technical Operations, as well as with familiarization with space Tactics, Techniques and Procedures that have been developed through eight years of combat operations. In addition to the Qualification Course, the Army has further enhanced space education and training with the development and initiation of the Tactical Space Operations Course, JTAGS Operator Course, JTAGS Senior Leader Course, and the Army Space Cadre Basic Course. This last course has been designed to provide Space Cadre "Enabler" personnel a basic level of space education in order to enhance their understanding of Army Space Operations. With this increased understanding they are better able to support "operationalizing" space, whether it is with technology, concepts, analysis, wargaming, modeling, etc. At the same time space-related doctrine development and publishing has grown in step. Ten years ago we had one joint publication; JP 3-14 Space Operations, which had taken almost ten years to produce. Since that time the JP 3-14 has been rewritten with significant input from the Army – and better reflects the operational requirements and wishes of the land component. Furthermore; Army doctrine has matured and now includes FM 3-14 Space Operations, as well as doctrine manuals and Army Tactics, Techniques and Procedures related to the Space Brigade and Theater Missile Warning operations.

THE FUTURE – WHERE DO WE GO FROM HERE?

Army space forces operational capabilities and related Doctrine, Organization, Training, Leadership Development, Materiel, Personnel and Facility activities bear little semblance to their predecessors. It is widely recognized both within and outside of the Army that we are a space-enabled force. We cannot fight today across extended distances on a noncontiguous battlefield in an operational complex environment without space-enabled support. Despite the rapid progress the Army has made in the last ten years "operationalizing" space we cannot afford to let up. There are new threats, new technologies, and new operational paradigms that are emerging that must be continually addressed. Warfare is constantly evolving and space must evolve also if it is to contribute effectively. In the months and years to come USASMDC/ARSTRAT and the Army must determine how best to integrate space and cyber capabilities, for both offensive and defensive purposes. In addition, we are faced with the questions of if and how the Army should integrate space and Special Technical Operations. Our world is growing increasingly complicated with integrated applications and networked communications paths changing the way we live, do business, and how the Army fights. In the next ten years the Army and USASMDC/ARSTRAT are going to have to determine how to "operationalize" space within the context of this new operating environment. Organizations, equipment, doctrine and training must continue to evolve to meet these new challenges.

CONCLUSION

So as I conclude my time in uniform, I am both proud and confident of Army Space. I am proud of the tremendous strides the Army has made in the last ten years "operationalizing" space. Within the short timeframe of ten years, space-enabled systems and capabilities, related organizations and forces have rapidly developed, and consistently proven themselves in combat. Army Space capabilities today are far more robust than they were when stood up. Our FA40s in Army Space Support Teams and Space Support Elements are currently doing work and supporting missions that were not even envisioned ten years ago.

At the same time I am confident in the future of Army Space. Space Operations Officers are creatively expanding and shaping the space mission area as they assume responsibility for integrating Special Technical Operations and cyber missions and capabilities, thereby bringing increased combat power to the land-component warfighter. It is a given that the Army will continue to evolve and with it the tactics, equipment, organizations, and training that sustain its operations; space operations will continue to evolve also, enabling operations across the Army. I am confident that Army Space Operations Officers, and those that support them, will continue to successfully develop, integrate, and adapt full spectrum capabilities in order to continue "operationalizing" space.

"SECURE THE HIGH G

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

SPACE

A Missile Defense Enabler

The Army space community bins Soldiers and civilians into two categories: Space Professionals and Space Enablers. A Space Enabler is defined as "Army personnel assigned to positions whose primary career field is not space, but who perform unique tasks or functions or may require specialized skills to apply space capabilities." As an FA40 working in the missile defense field, I fall into the Space Enabler category. As I thought about that label, I began to wonder "who is enabling whom?"

A quick review of the Ballistic Missile Defense System (BMDS) architecture tells a powerful story. The system receives its initial indications of a missile launch from space-based sensors. Once the missile breaks the horizon of the forward-based radars, that track data is transmitted to the fire control system via satellites, both commercial and MILSATCOM. The fire control system uses MILSATCOM links to move critical mission data between elements. The Global Positioning System constellation provides precision timing for all of the geographically-dispersed elements of the system. As the interceptor flies out, it uses star shots for navigation. The system communicates with the kill vehicle while it is in space, and the intercept occurs above the atmosphere. Additionally, the system must consider sun angles, the locations of resident space objects, and many of the sensors are multi-mission, supporting space situational awareness. It seems as though there is a lot of space involved in missile defense. In fact, without space assets, the Ballistic Missile Defense System does not work.

A great example of the nexus between space and missile defense is OPERATION BURNT FROST; the 2008 shoot down of a disabled National Reconnaissance Office satellite. As one of the lead planners for U.S. Strategic Command during this operation, my training as an FA40 was invaluable. BURNT FROST utilized a patchwork of missile defense and space sensors to execute the intercept using a modified U.S. Navy SM-3 missile. Understanding orbital mechanics, space weather and space sensor capabilities, along with my understanding of theater missile defense platforms and command and control greatly improved my ability to coordinate complex issues across services, combatant commands and between the missile defense and space communities. This experience solidified my view that space and missile defense are complimentary, and that space is indeed a missile defense enabler.

Path Ahead

Beyond my dislike of being called a space enabler, I do have an agenda. I believe it is an operational imperative that we institutionalize space training into the Ballistic Missile Defense System training curriculum. From my perspective as a brigade commander, I want my missile defense crews to understand the operational implications of space on the Ballistic Missile Defense System. Space weather matters, as it impacts communications and radar performance. The health of the Defense Support Program and Global Positioning System constellations matters on a number of levels. Understanding the capabilities and limitations of space systems, along with their requisite impacts on the Ballistic Missile Defense System performance is critical. Very little of this is currently taught to new operators. In my opinion, courses like the Interservice Space Fundamentals Course, Space 200, and other courses should become a required part of the Ballistic Missile Defense System training process.

From a broader perspective, we need to examine the utility of assigning FA40s to the 100th Missile Defense Brigade (GMD) and key missile defense planner billets, as well as having missile defenders serving in the 1st Space Brigade. This "cross-fertilization" also has advantages to Army National Guard life cycle management, as it would enable Soldiers to seamlessly transition between the 100th Missile Defense Brigade (GMD) and the 117th Space Battalion of the Colorado Army National Guard. I sometimes have to remind people that USASMDC stands for U.S. Army Space AND Missile Defense Command. There is a lot of synergy between the two communities; we need to take advantage of that, especially as resources become more and more constrained.

LTC J. Dave Price
Commander, 1st Space Battalion

PARADIGM SHIFTS

1st Space Battalion and Space Mentorship

We all have a responsibility to develop junior officers, noncommissioned officers and Soldiers, and grow Army space and the space community in general. We can do this in our daily jobs, by reaching out through multiple media applications or even by participating in the Army Space Professionals Association. We must do the hard work today to reap the benefits 10-20 years from now. I challenge everyone in Army space to jump in and start making a difference – today. In several articles within this edition, the battalion will initiate discussion on a wide variety of space topics, but there are six areas in particular I would like to generate some thought on about our Space community in this article.

Training Base for All New FA40s

We believe it is the intent of the FA40 assignments division (and thus Army Space) to bring all newly assigned FA40 into the 1st Space Battalion in their first assignment. This will basically require the battalion to operate as training base for all new FA40 in their formative years. We are supportive of this initiative in the Brigade and believe now it is even more important to get as many officers as possible assigned to and working in both the Space Control and Space Force Enhancement fields. In Space Force Enhancement, we consider the Joint Tactical Ground Station and missile warning options to be just as valuable as Army Space Support Teams team experience. Not only would we plan on providing all new officers some experience in more than one mission area, but we intend in developing a natural progression line for officers from the battalion to the brigade to periodically, G3, Future Warfare Center, Directorate of Combat Development and National Security Space Institute positions. With that stated, the 1st Space Battalion remains a deploying force (force provider), and most officers will have to take at least one deployment in their time here. Allowing officers to develop in two mission areas also increases their chances of deploying twice during their time here. In order to meet all of these "experience" goals thus far discussed – we believe it is necessary to assign all new FA40 to the 1st Space Battalion for four years. The end-state is that all of our officers are prepared to move on easily to Space Support Element positions and other jobs in Army, Joint, interagency or interservice positions.

Duration of Command for Space Battalion

The length of time for most active component battalion commanders is three years. While we don't advocate for changing the length of command to three years, we do advocate for the three year experience. How do you do this? In the Navy and in other services, they do that by identifying the next commander as the executive officer of the ship or of an aviation squadron and then placing that officer in command following the executive officer experience. In the battalion you could increase the number of experienced battalion commanders who would be competitive for 0-6 key positions. Identify the executive officer for an 18 month tour and have these officers take command of the battalion(s) for 18 months, thus giving them the three years experience. It would also make for developing the executive officer position as key in the space community for growth and allow for smoother transitions between battalion commanders.

Task-Organizing for Future Space Battalions

In a future Army Space Journal article, I will lay out the advantages of developing a provisional 2nd Space Battalion for Space Control and the interim task organization that will set us (in the Army space community) for that possibility. Ultimately, we envision mission requirements that will force us into splitting the 1st Space Battalion along Space Force Enhancement and Space Control lines. That article will be designed to "think through" an interim organization that would allow for a Directorate of Combat Development study or possible out of cycle update to the Modified Table of Organization and Equipment. Regardless of the outcome of a study; the battalion continues to grow and at least two more company headquarters are required today to ensure success of our valued missions.

Paradigm >> continues page 18

Paradigm from page 15 >>>

We are on our near fiftieth deployment of a Space team downrange in support of Operations Iraqi and Enduring Freedom and we have developed a scientific approach in our "life cycle management" of this organization.

Lastly, we take a look at developing operational detachments out of our Army Space Support and Commercial Imagery teams that can be task organized and trained to do any Space Force Enhancement mission.

Army Force Generation

Also in the next Army Space Journal, the 1st Space Battalion will have an article that lays out how we conduct force generation for our space capabilities. We are on or near our fiftieth deployment of a Space team downrange in support of Operations Iraqi and Enduring Freedom and we have developed a scientific approach in our "life cycle management" of this organization down to the individual and team level. This article gets about the business of a production line in Space forces that provides trained and ready 365/24/7 teams in our model. It also describes how we task organize in a multi-component battalion and environment to make this happen.

Battalion Standardization

Recently, the 1st Space Battalion went through a fundamental shift in its approach to training and evaluation. As recently as June 2009, there was no full time training and certification shop at the battalion level for Space Control or Space Force Enhancement. Back in 2005, the battalion improved its oversight for missile warning (JTAGS) by building a training and evaluation team at the battalion level but only recently have we done the same for the rest of the mission areas. This now places training oversight and certification of detachments squarely on the shoulders of the battalion team and this is where certification needs to reside. We have recently rewritten, updated and improved all of our Tactics Techniques and Procedures and Standard Operating Procedures in Space control and will continue to drill down on our Space Force Enhancement and subsequent Missile Warning mission areas. The result of this work has specifically been embodied by the Brigade and the G-staff newly implemented Space Forces–Standards and Evaluation Section. This team effort is overall concerned about qualification, certification, validation, endorsement and training of our Space forces.

The Space Council of Colonels

This is a call for the leadership of the FA40 community to begin mentoring the next generation of the "Council of Colonels." We spend a considerable amount of time talking about mentoring the junior field grade and company grade officers but it is time we do the same at the 0-5 level.

The Council regularly meets (in most branches) to discuss highlighted topics, major muscle moves, phase lines and the way ahead for their community. However, this direction – derived and given – during these councils is often executed by the next generation of officers. The Council goes about the business of keeping the branch/proponent on track for proper growth and long term health of the organization. The Council should consider including some of the next generation of leaders in the organization in observation roles.

The Council is often made up of the senior space members by position (not individual) from USASMDC/ARSTRAT, FWC DCD, the brigade, G3/5/7, JFCC Space J3, National Security Space Office, Army Space Support Element Chiefs and Liaisons, as well as other significant stakeholders – the proponent for Space and our branch manager, to name a few. Most of these directorates have key mid to senior level 0-5s that could be involved in or understand major muscle moves made in the Council. Each director/lead for their area of influence should include at least one 0-5 to the discussion. Example, the U.S. Army Europe Chief (0-6) could invite a U.S. Africa Command, U.S. European Command or U.S. Army Europe Space Support Officer (0-5) to the table, same as the brigade commander (battalion commander or brigade S3 or both), G3/5/7 (DC area 0-5 staff officer) along with each and every influencer.

The reason is that most of these ideas and decisions will be executed or planned by the "future" of Space officers and not necessarily those officers who make or shape the decisions. We should continue to relook at how we run and manage "the Army Space organization." Now is the time to develop the next generation of senior officers; not later.

This article is solely the opinion of the writer and is designed to spark discussion in these important areas of space organization and mentorship. The writer can be reached at john.price1@us.army.mil to further the discussion or idea.

LTC J. Dave Price is currently the 1st Space Battalion commander and has been in the space community since 2004. DSN 312-692-1900 or 719-554-1900.

RENDEZVOU

Editor's Note

A 1962 nuclear explosion in space contributed significantly to the creation and implementation of the Outer Space Treaty in 1967, which outlawed weapons of mass destruction in space. As technology evolved afterwards, this treaty influenced development of space-based military capabilities and the organization of military space forces in the United States. This created serious challenges for today in fully bringing strategic space power to bear on national security issues as land, air, and sea forces become increasingly dependent upon these capabilities.

This 2010 U.S. Army War college paper compares the challenges to national space power today with those seen during the developing years of air power. The comparison illustrates how the United States compounds its space power risks to national security today in similar ways to how mindsets impacted air power implementation prior to WWII. This paper reviews the theoretical underpinnings of space power and the views that existed about air power prior to the creation of the U.S. Air Force in 1947. Through this analysis, the paper 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.

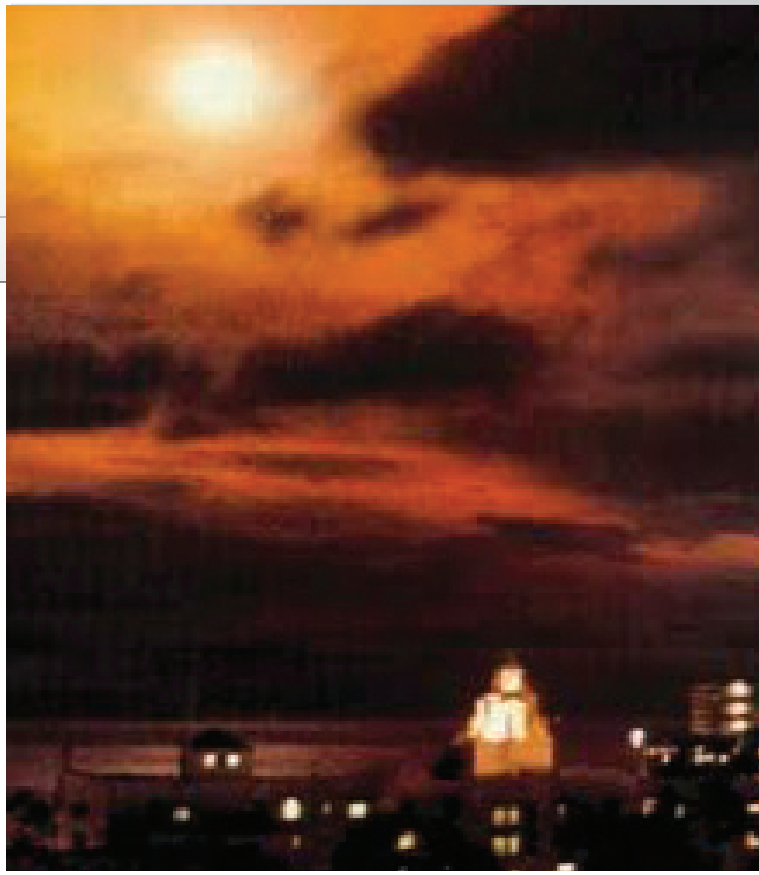
When President Barrack Obama announced in April 2010 that he wanted America to focus space research on making human deep space travel to Mars possible sometime during his lifetime, he re-introduced President John F. Kennedy's vision of space exploration.[1] In creating these visions for their respective generations, both leaders touched upon something broader than garnering future civilian or commercial space benefits. The space worlds of yesterday, today, and tomorrow all possess the same beginnings in military space power exploration.

With war still fresh in minds around the world in 1946, the United States and Soviet Union began the Cold War racing to develop missiles capable of reaching outer space. While both countries built upon technologies that began before WWII, it is important to note that the space race – and the resulting value that space assets bring to world society today – was ignited in the context of WWII's aftermath. The Soviet Union achieved the goal first by putting Sputnik into orbit on October 4, 1957. The United States followed with its own satellite – Explorer 1 – launched aboard a modified Redstone missile on January 31, 1958.[2] The significance to the world today of these developments in terms of systems that gather data in and transmit

S IN SPACE

Looking in on Military Space POWER

BY MICHAEL L. HOWARD, ASJ EDITOR-IN-CHIEF



Starfish Prime Nuclear Explosion 1962. Courtesy photo
http://en.wikipedia.org/wiki/Starfish_Prime

through space was monumental to both the civilian and military communities.[3] Not only did the two countries develop launch capabilities that would allow placing objects and eventually humans into space by numerous nations, they introduced the concept of using space for military purposes both in terms of military utility and weapons.[4]

The potential gravity of this is illustrated in a series of independent nuclear tests both countries engaged in during this same general timeframe. In 1946, the United States began a series of experiments with nuclear warheads that included exploding them at high altitudes. While the experiments were intentional, the results were not – especially the results of the blast that caused the most significant impact. Known as Operation Starfish Prime, the United States ultimately demonstrated the potential vulnerability in space when it detonated a 1.4-megaton nuclear weapon in lower-earth orbit over the South Pacific on July 9, 1962. With the world's space capability in its infancy, the explosion created an electromagnetic disturbance that created serious concern among those involved and who had a stake in the outcome.[5] The electromagnetic pulse not only disabled the seven satellites in lower-earth orbit, but it disrupted electricity on earth and created a space environment where new satellites could not operate for weeks to months.[6]

Knowledge of Starfish Prime is critical in understanding today's space problem because it introduced a critical consideration about how the U.S. military is organized today to employ space power. This historical event influenced three developments that form the basis of U.S. space power: 1) Rockets or lift capacity, 2) Satellites or data gathering and transmitting capability, and 3) The possible catastrophic effect in space from a variety of threats to include the use of nuclear weapons. America's cautious military use of space power since Starfish Prime through the remainder of the Cold War is explained primarily through a philosophy of maintaining a "sanctuary" for technological development and use in space.[7]

Starfish Prime contributed significantly to the creation and implementation of the Outer Space Treaty in 1967, which outlawed weapons of mass destruction in space. This treaty followed the sanctuary concept and served as a powerful influence on developing space-based military capabilities and organizing military space forces as technology evolved.[8] While blocking nuclear explosions in space, the treaty also created serious challenges in fully bringing strategic space power to bear on national security issues as land, air, and sea forces became increasingly dependent upon space assets.[9]

The comparison illustrates how the United States compounds its space power risks to national security today in similar ways to how mindsets impacted air power implementation prior to WWII.

Several studies and experts in recent years advocated for a separate military service for space.[10] A recommended model for establishing this priority in space is in how the U.S. Air Force broke away from the U.S. Army to become an independent service.[11] Although space power discussion today parallels those of air power prior to WWII, the arguments that arise about the employment of space power are more important than the discussion of a separate service.

This paper compares the challenges to national space power today with those seen during the developing years of air power.

A JTAGS Soldier works on a satellite dish at Misawa Air Base, Japan. *Photo courtesy USASMDC/ARSTRAT*

The comparison illustrates how the United States compounds its space power risks to national security today in similar ways to how mindsets impacted air power implementation prior to WWII. This paper reviews the theoretical underpinnings of space power and the views that existed about air power prior to the creation of the U.S. Air Force in 1947.[12] Through this analysis, the paper 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.

Today's Space Situation

Recognizing the space power problem areas and what to do about them is not the primary issue with today's national security space power situation. Rather, the key challenge rests in having the national strategic foresight and willpower to follow through on recommended solutions.[13] In 2001, the Rumsfeld Commission identified numerous national space issues and made recommendations on how to address them. Among the recommendations were: 1) Centralized management of space programs and overall acquisition of space platforms for national security and 2) Creation of a military space department when conditions allow.[14] The Rumsfeld Commission further warned that if reform did not occur, a catastrophic event in space could eventually happen, ultimately forcing the nation into action. The commission referred to it as a possible space Pearl Harbor.[15]

In 2008, the Allard Commission reported that a potential for the space Pearl Harbor had actually increased.[16] The central problem remained in not having a single line of authority to the President for military space.[17] The Allard Commission repeated the warnings of the Rumsfeld Commission and highlighted a lack of action on many of the 2001 recommendations. Among other reforms, the Allard Commission recommended that the Department of Defense establish a military space corps.[18] In March 2010, the Senate Armed Services Committee held a subcommittee hearing on space programs. Members and witnesses expressed the familiar concern over the many space acquisition programs that lag behind schedule and run significantly over budget, along with the overall space organizational structure issues mentioned in the 2001 and 2008 efforts.[19]

The question becomes one of where to find and prevent vulnerabilities in space. The Rumsfeld Commission highlighted the fact that China was developing ways to interrupt America's dependence on space.[20] China provided America a wake-up call in 2007 when it destroyed one of its own weather satellites with a direct-ascent anti-satellite weapon in lower-earth orbit. By so doing, China clearly demonstrated that it possessed the capability, know-how, and willingness to interrupt the "sanctuary" of space.[21] Additionally, the 2001 report noted that China, Iran, North Korea, and other adversarial countries were potentially capable of jamming satellite transmissions.[22] Since then, open sources indicate that North Korea and Iran – among others – possess satellite jamming technology and there is recent evidence that adversaries have jammed U.S. commercial satellites.[23]

This leads to the main relevance of the space issue – an explanation of what the military requires or obtains from space. Space-based capabilities fall into four mission areas: 1) Space force enhancement, 2) Space support, 3) Space control, and 4) Space force application. Space force enhancement is the heart of space power – it delivers space products. These products include: 1) Intelligence-surveillance-reconnaissance information from space necessary to make combat and other assessments, 2) Tactical missile warning of nuclear detonation or ballistic missile launches, 3) Environmental monitoring of meteorological, oceanographic, and space environment factors, 4) Satellite communications, which includes secure and unsecure ways to

GAO directly linked the acquisition problems with the convoluted organizational structure that includes "cultural barriers" – strongly indicating that the problem as a whole is in leadership, organization, and management.

communicate both traditional information and data generated or passed through space systems, and 5) Space-based positioning-navigation-timing – known by most as GPS – that assist with navigation and munitions guidance. Collectively, the intent of these products is to improve the overall effectiveness of the joint military force.[24]

Space support includes the national ability to deploy satellites into space, keep the satellites operational, and replace satellites as needed.[25] Space control is essentially maintaining freedom of action in accessing information that is either derived in or transferred through space assets while being able to deny it for an adversary.[26] Space force application includes combat action "in, through, and from" space that are intended to "influence the course and outcome of conflict."[27] This is where missile defense fits in. The fact that missile defense is included in the space equation is important because missile defense is largely left out of military space power discussions yet its development as a global tool since 2001 has had the "most impact" on the weapons in space issue.[28]

Recognizing space as a U.S. national military asset helps bring the concern for anti-satellite and jamming events into clearer focus – along with the emerging missile capabilities of Iran and North Korea. Military and civilian leaders today who are intimately involved in the military space enterprise correctly articulate the central importance of commercial and military space platforms. These platforms are essential in accomplishing everyday key transactions across the domestic-information-military-economy spectrum. In fact, space is "in the fabric" of what America's joint military force does – the military would not be able to fight as it does today without space capabilities.[29] These space advantages give military power a new level of accuracy, agility, range, and effectiveness – ultimately changing the "very nature of war," according to one DoD senior official.[30]

The military and commercial space enterprise provides the joint force "the ability to see with clarity, communicate with certainty, navigate with accuracy, strike with precision, and operate with assurance."[31] The military population, in general though, does not fully realize this dependence upon space capabilities – oblivious to the potential threats that exist to these capabilities and assuming the capabilities will always be present.[32] There is also no single line through which commanders can access space products. Instead, staffs must coordinate through complicated processes that are further complicated by stove-pipe organizations that make it difficult to access what the commands desire. In general terms, military combatant commands receive intelligence-surveillance-reconnaissance information primarily through military intelligence channels, while national weather information arrives through a combination of civilian and military systems. For the most part, commanders request missile defense and other space services come through U.S. Strategic Command but, even then, through different channels.[33]

A Standard Missile (SM-3) is launched from the Aegis combat system equipped Arleigh Burke class destroyer USS Decatur (DDG 73) during a Missile Defense Agency ballistic missile flight test. *Photo courtesy U.S. Navy*

Other systemic problem areas include insufficient space program development and acquisition, program cost over-runs and delays, and poor space management and coordination. The program acquisition processes are "broken" and the overall management of military space is "fractured."[34] While testimony this year from Department of Defense and U.S. Air Force officials acknowledged remaining problems in space acquisition, they claimed there was significant improvement in space acquisition and operational management aspect of space since 2001 commission. The U.S. Navy official countered that the current structure for space was not the "perfect organizational alignment."[35] The Government Accountability Office (GAO) official testified organizational management lingers as a major concern.[36] In written testimony, the GAO directly linked the acquisition problems with the convoluted organizational structure that includes "cultural barriers" – strongly indicating that the problem as a whole is in leadership, organization, and management.[37]

In addition to the military's assertions that space power is in the "fabric" of modern-day military operations, the following three quotes summarize the military space power condition today:

The dissonance is loud: Space power has had such an impact on how war is fought that it now has some believing it changed the "very nature of war," yet cultural barriers negatively impact the contribution of space in today's national security environment.

- "Recent studies and reviews examining the leadership, organizations, and management of national security space have all found that there is no single authority responsible below the President and that (the) authorities and responsibilities are spread across the department."[38]
- "Diffuse leadership … makes it difficult to hold any one person or (an) organization accountable for balancing needs against wants, for resolving conflicts among the many organizations involved with space, and for ensuring that resources are dedicated where they need to be dedicated."[39]
- "In fact, DoD is now facing a situation where satellites with advances in capability will be residing for years in space without users being able to take full advantage of them because investments and planning for ground, user, and space components were not well-coordinated."[40]

Evolving Space Power Theory

Realistic space power theory in today's terms is a relatively new and untouched topic. This fact is unfortunately complicated by technological capabilities that are evolving quicker than the theoretical discussions and resulting national policy about them. The dissonance is loud: Space power has had such an impact on how war is fought that it now has some believing it changed the "very nature of war," yet cultural barriers negatively impact the contribution of space in today's national security environment.[41] This overall situation combines with the current nature of the national security environment and places the military at a rare and critical intersection in determining how to provide for future national space needs.[42]

This launcher executed the first successful engagement of a SCUD missile in Operation Desert Storm, Jan. 17, 1991. *Photo courtesy U.S. Army*

In 1999, the author of Space Power Theory defined space power in detail: "Space power is the combination of technology, demographics, economic, industrial, military, national will, and other factors to contribute to the coercive and persuasive ability of a country to politically influence the actions of other states and other kinds of players, or to otherwise achieve national goals through space activity." The author further explained space power theory as "a theoretical concept of how and why space resources work with other factors to contribute to implementation of policy and achieve defined goals. A theory proceeds from facts, makes assumptions, and predicts a result caused by the relationship of factors within the concept."[43]

Space power theory is about using the sum of what can be done in space for strategic reasons in international politics.[44] In a book the publisher expects out later this year – Theory of Space Power: The Perils of Strategic Analogy – the author provides a concise starting point for a discussion on space power theory in the form of a definition. The author similarly defines space, air, land, and sea powers for their domains as: The "ability in peace, crisis, and war to exert prompt and sustained influence in and from" those specific domains. Additionally, he quotes Colin Gray's definition of strategy: "The use that is made of force and the threat of force for the ends of policy." [45] The author further provides several attributes that are helpful in understanding space power theory – the theory must be logical and explain how space relates to the overall strategy that it is supposed to help. Most important: "A theory of space power should provide a common framework from which all can refer and a conceptual means by which space power is exploited to its full potential."[46]

The purpose of theory, then, is to explain what, why, and how something does what it does. Yet today, the United States lacks that comprehensive perspective that explains the integration of space capabilities into military operations, despite the organizational recommendations that external studies since 2001 have consistently revealed. One controlling factor in this lack of clarity is the incorrect linkage of space and air powers. In the late 1950s, the U.S. Air Force began the linkage by referring to the two domains as "aerospace" and indicating there was no distinction between them.[47] Even today, efforts to combine space and air powers are a "political artificiality."[48] Space is actually a location with boundaries and different properties that can influence action or be exploited to gain an objective. As such, it must be controlled as an independent domain from air – it achieves different things differently.[49]

In order to improve the nation's organization for how it manages military space, a political re-awakening would need to clearly establish that space is not a sanctuary where operations are assumed secure.

This perspective of linking air and space power, however, has had at least a limiting effect in today's military and world security contexts by restricting the ability to accurately identify independent attributes of space power.[50] Space Power Theory provided necessary insight into this mindset. The author explained four phases of technology development, in which space power discovery is first, exploration of the ideas about how to use the technology second, general acceptance for the ideas that worked third, and actual utility where the capabilities become a part of everyday life fourth. The author believed in 1999 at the time of the writing, that the United States was in the third phase of development in which it was becoming accustomed to the benefits of space. He noted that there was a "relative immaturity" of space systems and concepts on how to use them that impacted useful theoretical discussion.[51] Using the author's definitions, the United States is now in the fourth phase in which technology is proving itself useful to society.

Public perception and possibly reality about the space domain is different today than it was when the Space Power Theory author made these observations. Even the first Gulf War is credited by some with being the first space war primarily because it introduced not only GPS-guided munitions, but also communication, intelligence-surveillance-reconnaissance, and environmental monitoring were each critically useful.[52] Although the integration of these capabilities was not nearly to the degree it is in today's conflicts, a significant misperception existed then. These capabilities came from what was perceived as a virtually uncontested space environment when, in fact, they did not. Some would argue that the very real potential of someone contesting America's use of space actually always existed and that there was a false sense of security that the United States would always benefit from security in space.

To a certain extent, this persistent view of space as a sanctuary – "conflict cannot happen here at all"[53] – remains today even though the reality of the threat appears more obvious in recent years. President Dwight Eisenhower first established the idea in 1957 with his space policy that treated space primarily as a sanctuary for military reconnaissance purposes. His administration reiterated this approach in 1958 when it further established military utility in space with communication and weather added to reconnaissance. The 1967 Outer Space Treaty grounded the sanctuary principle into the historical reality of space.[54] Various administrations dealt with international space issues over the years – each creating enough room in national space policy to adjust as needed if a threat became real, but with some mixed signals.[55]

In order to improve the nation's organization for how it manages military space, a political re-awakening would need to clearly establish that space is not a sanctuary where operations are assumed secure. Instead, the nation must recognize that space is actually a contested domain.[56] Two critical points about the necessary mindset: 1) "Space is a (global) commons. It is used by all nations. You don't need a satellite up there to use the environment. With a credit card and a Web site, you can extract information from space," and 2) A nation has "the inherent right of self defense to operate in the medium just like it would at sea or in (the) air. All the rules apply in that environment as they do in the other commons."[57]

DH-4s in flight. *Photo Courtesy Lewis Lupton Kaylor collection, Corporal, Photographic Section, Air Service, United States Army*

Air Power Big Picture

The struggles of the U.S. Army Air Corps to break away from the confines of the U.S. Army are well-known, yet the fight to establish air power's independence was actually with both the land and sea proponents. The air power theoretical discussion centered on how, from the air community's perspective, the virtues of air power were limited from their true potential by organizational biases and, from the sea and land power communities, how a separate military service for air power would distract from necessary air support to the land and sea forces. The core belief eventually emerged that cultural and doctrinal influences had a limiting effect on air power projection. WWII bore out some of the argument and, in the end, an independent service for air emerged.

The reason Brigadier General Billy Mitchell is significant to the emergence of air power is not that the demonstrations and subsequent court martial cemented polarity in the issue. Rather, they illustrate the explosiveness of the air power situa-

Brigadier General Billy Mitchell showed the potentially devastating effect of air power in bombarding warships while the United States unintentionally demonstrated the potentially devastating effect of space power in Starfish Prime.

tion at the time. Some accounts of Mitchell's actions after WWI paint him as a caricature of insubordination, harmful to his own cause while others place his actions as heroic in becoming the father of the U.S. Air Force. Although he was a vocal air power advocate since service in WWI, he is famed mostly for conducting a series of aerial bombings of mothballed battleships in the 1920s. In the end, he felt the tests proved his point about air power superiority. When he publicly accused U.S. Army and U.S. Navy officials for treason in regard to how they handled the information, he received a court martial and was dismissed from the U.S. Army. [58]

Just as the Soviet Union and the United States began the Cold War testing the missile-satellite-nuclear aspects that created the genesis of today's space power equation, the beginnings of military air power thinking came from personal experiences of men who fought in and survived WWI. This perspective provides some important insight. Along with other early-day air power theorists, Mitchell experienced the "slaughter that was the first-world-war."[59] This led him – them – to believe that the technology in air power was the "silver bullet" that would revolutionize warfare and somehow avoid the "carnage" of war.[60] It also led theorists to "overpromise" what technology could provide to the nation's overall combat strength.[61]

Mitchell's primary point in his argument and demonstrations was that battleships were vulnerable to aircraft bombardment and, therefore, air power presented a superior method to sea power in defending the United States.[62] This idea of air power being superior is clear in a biographer's consolidation of Mitchell's thesis:

> "Air power, organized into a separate, equal (to U.S. Army and U.S. Navy) and autonomous air force under a unified department of defense, could serve as the most effective and economical means of defending the continental United States. If the matter ever came to fighting an overseas enemy, airpower could decisively attack the enemy's vital centers without first defeating his armies and navies. Attacks on such vital targets would render war so decisive and quick that the total suffering would be less than otherwise … therefore, such bombing would be more humane than conventional trench warfare. Air power is best generated by nations with populations that are air-minded; the United States has great potential for air power but needs to develop it. Air power is best controlled by an airman in a centralized way to facilitate its offensive use."[63]

A plane takes off from a ship deck on it's way to make a bombing run. *Photo courtesy U.S. Navy*

There are no similarly strong advocates for space today. There are only warnings from the space community and external studies such as the Rumsfeld and Allard Commissions. A positive aspect about this, though, is that there are also no similarly written thesis to Mitchell's that is widely accepted and that purports space as being able to do more than it can do.[64] There is a general maturity about the overall military debate in which advocates on either side of issues recognize that space technology opens doors to additional dimensions but also realize that, in the end, the technology will not change war's nature.[65] This is in line with the current philosophy that war is "purposeful violence to achieve policy ends."[66] While there is a basic recognition that space is changing the character of war, the reality remains that vulnerabilities exist: Mitchell showed the potentially devastating effect of air power in bombarding warships while the United States unintentionally demonstrated the potentially devastating effect of space power in Starfish Prime.

Other historical correlations exist with the emergence of military air and space powers. An important question that will always remain unanswered is whether or not a different perspective of air power prior to WWII – heeding Mitchell's warnings – would have made a difference. It is a fair question, specifically in regard not only to Pearl Harbor but to the numerous U.S. warships destroyed by enemy aerial bombings during the war. The

Just as Mitchell's assumptions provided the framework for his thesis on air power, they also provide an excellent method in identifying potentially key attributes of emerging space power.

air power capability remained under the control of land and sea power through its developing years just as, later, space power evolved as a natural extension to air power in some minds. There was strong sentiment before WWII that air power needed independence in order to remove limitations and reach full potential. That same sentiment exists today in regard to space power.[67]

Detailed Comparative Analysis

With this big picture in mind, the broad similarities provide an introduction to a more detailed and necessary comparative analysis of earlier assumptions about air power and observations about space power today. For the purposes of this comparison, this paper uses eight primary assumptions that Mitchell discussed in his view of air power theory. Just as Mitchell's assumptions provided the framework for his thesis on air power, they also provide an excellent method in identifying potentially key attributes of emerging space power. The purpose of the comparison is to find potential reasons for air power becoming an independent domain while space power remains harnessed.

Revolutionary — "The coming of aviation was revolutionary."[68] In terms of technology – and the socio-economical aspect – this assumption is essentially true for both air and space capabilities. Air power improved the range, speed, and maneuverability in war so that there was more flexibility in moving troops and hitting targets.[69] Introduction of space power virtually eliminated the "tyranny of distance" in terms of generating in and moving data through satellites while drastically improving accuracy for navigation and munitions through the GPS-type capability.[70] As for revolutionizing war, the advents of both air and space powers are more accurately described as changing the character of war because they introduced new dimensions to the war equation.[71]

Prime Requirement — "Command of the air is a prime requirement."[72] The basic premise of this appears true for both dimensions – although there may have been some bravado with the original air power assumption in line with overselling the concept.[73] However, the ability to maintain air superiority is now considered the heart of air power: "When were the last time American troops attacked from the air?"[74] Also: It is "hard to fight when someone is shooting at you from above."[75] It is difficult to maintain similar superiority on the space side today because the concept really is not yet defined. Because of the international competitiveness in space, however, the United States must virtually guarantee access to space assets for an area of operations.[76] The reason for dominance is that U.S. forces

C-47 transports like these were part of the D-Day, June 6, 1944, landing in Normandy, France on Omaha and Utah beaches *Photo courtesy U.S. Navy*

benefit from a clear advantage – and therefore they rely upon – space force enhancement capabilities.[77]

Inherently Offensive — "Air power is inherently offensive: The bomber will always get through."[78] Again, the basic premise possesses some truth for both domains. "There is no doubt that air power was a significant contributor, but it didn't win the war all by itself."[79] Contrary to the original idea in the assumption, air power did not bring the war to an early end.[80] This is equally true for the possibilities of space power. Imaging satellites extend strategic depth for commanders beyond what they have ever seen before and, by so doing, they give an offensive advantage to those with the capability. This does not necessarily translate to making war easier or less bloody.[81] As for the bomber-can-get-through mentality, this is seen today in an over reliance on satellite-acquired intelligence data and other space services.

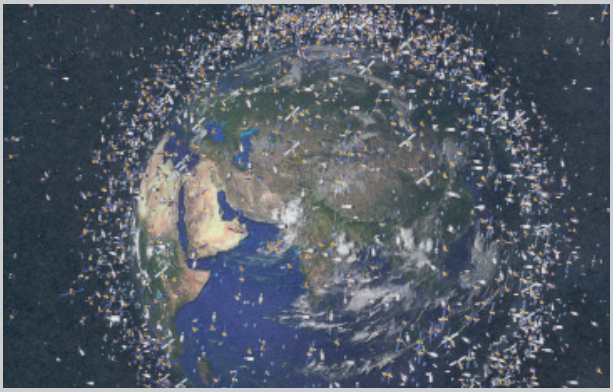
Evasive Nature — "Antiaircraft artillery is ineffective."[82] This assumption did not prove itself with air power and, from a literal sense in terms of missiles, is not true at all for space power. On the air power side, the thought was that at least some aircraft would get through when there was an overwhelming number of aircraft flying in a formation properly suited for the attack – the unfortunate result of that approach was that bombers were shot down and the unnecessary loss of life.[83] As was illustrated by the Chinese anti-satellite event, a hit in lower-earth orbit increases debris that places all assets in that orbit at risk.[84] Also, because of the laws of physics that define the space domain, satellites are "sitting ducks" to missiles launched by state or non-state players with the capability.[85] Potential protections include multi-domain solutions with additional redundancies in space systems and capabilities so that services do not necessarily rely upon limited tracks, hardening of the satellites

The missing link for creating a separate military service for space is the empirical proof that space power can make a significant contribution to war's victory or in defense of the United States.

themselves so that they can withstand the elements, and entering international partnerships to increase those entities with equity in a safer space environment.[86]

Economy of Force — "Air power could defend the continental United States more economically than the Navy, and the latter's form of warfare is obsolescent."[87] Again, the premise in this assumption is wrong in suggesting that any new geographic power domain could eliminate another. There will always be a need for land forces, sea forces, and air forces.[88] However, improvements in accuracy and overall delivery systems – precision munitions enabled by space data, over-the-horizon communications, overhead intelligence – have increased effectiveness.[89] They have become a significant contributor to economy of force at the operational level of war – primarily by providing information an adversary cannot acquire. Improvements in space-enabled munitions accuracy and overall delivery systems have increased the effectiveness and economy of force that come from air power.[90]

Unique Breed of the Airman — "Airmen are a special and elite breed of people, and they alone can understand the proper employment of air power."[91] This assumption – and the Mitchell persona – may have fueled the grassroots culture among pilots and those who belonged to the U.S. Army Air Corps. Deeper inside the assumption, though, is the idea that there is a requirement for unique people who understand the technology in order to tweak it to its full potential.[92] While the need for this is also true on the space side, the same cultural identity does not exist today within space power community as it did within air power in the early days.[93] In both cases, though, there is a strong requirement for individuals who are capable of understanding the attributes across the other domains in order to find ways to fully exploit the capability to the needs of national military power.[94]



Computer representation of traffic bottleneck caused by satellites and other debris put into orbit. *Image courtesy European Space Agency.*

Total War — "Future wars will be total: The ascendancy of the ground defensive will persist; everybody is a combatant."[95] This grounding assumption once again possesses a hint of salesmanship in terms of promoting the importance of the new domain. Since WWII, America experienced conflicts in which the different domains contributed differently – for example, the wars in Afghanistan and Iraq rely primarily on land power while air power dominated the conflicts in Kosovo and Bosnia in the 1990s.[96] As for space power, this is entirely a joint force endeavor in which the capabilities derived in and passed through space directly impact full-spectrum operations.[97]

Fragile Centers of Gravity — "Civilian morale is fragile."[98] This assumption underestimated the resilience of people. The idea in this assumption was that aerial bombing of civilian targets would cause the enemy to submit more quickly and this would therefore lead to a faster resolution to war – which was not the case.[99] Following this concept during WWII proved to be an expensive endeavor in terms of human lives. This type of overarching statement is equally untrue for space power. While there is some potential relevance to the broader perspective of attacking enemy centers of gravity, they will likely differ between conflicts. More importantly, the types of effects that can come out of space give commanders greater latitude – depending on what is desired – in shaping an adversary's behaviors.[100]

Findings

From this analysis, the missing link for creating a separate military service for space is the empirical proof that space power can make a significant contribution to war's victory or in defense of the United States. Although space power emerged as a critical enabler of combat power during the Iraq and Afghanistan wars, it has not proven that it can deliver the "game-changer" while getting its nose bloodied in combat on par with air power's combat test in WWII. This fact does not speak to the value space power provides to the nation today or its future potential contributions in national security efforts – just as air power had not yet proven itself until WWII. The degree of proof necessary to settle the debate about the organization of military space in today's world simply does not yet exist.[101]

Several key points about air and space powers emerge from comparing the assumptions that existed about air power from its earliest days with key attributes found in today's space power situation. The primary similarity in air and space powers – with entirely different attributes – is that both served as critical enablers to land and sea powers during the evolving years of their disciplines. With space power, that status continues. Conversely, the primary difference between the two is that air power came into its own during WWII. Air power proved, through its offensive nature and deep strategic bombing of enemy target areas, that it can be depended upon under combat conditions to come through with significant contributions.

The analysis reveals key areas of concern in regard to developing a new national perspective on space that will allow reform. The United States generally does well in responding to national security situations after they show up. It does not, however, do as well in seeing through bureaucracies and taking strategic measures that would potentially sidestep crisis.[102] Although it is unknown whether or not the Pearl Harbor attack was avoidable, maintaining absolute control of the air domain over a theater of operations proved a critical capability as WWII events unfolded. Unfortunately, there is no vision for how to raise space power into a similar principle contributor to war's victory – something that would take space power to the next level. A potential seam area for this development lies within space capabilities that can influence an adversary's center of gravity.[103]

Space Power Theory, the 1999 book referred to in this paper, included a series of beliefs held at the time by the author. "Space power, alone, is insufficient to control the outcome of terrestrial conflict or ensure the attainment of terrestrial political objectives."[104] While writing before the Iraq and Afghanistan wars, the author essentially predicted that space power's strong relevance would come by seeking synergy with air, land, and sea powers.[105] This prediction explained how space power would likely change the character – not nature – of war for the current generation of American fighters. This also helps explain the gap between the magnitude of dependency on military space power and the seriousness of organizational shortfalls.

With space power at its current level of maturity and integration into military operations, more non-politicized open discussion needs to occur across the services and within the operational communities which benefit from and depend upon them. Equally, these discussions must extend across government and the commercial ends of space to identify the best ways to proceed for the nation. The Mitchell comparison model gives a basis for these discussions. The model provides critical insight into how the United States can identify potential space power attributes from which significant contributions can emerge and contribute to war's victory. Until there is recognition of the attributes and potential contributions, the status of military space power in America will remain as a critical enabler delivering space-based data to the land, air, and sea domains vice a true power provider that fully fights in its own right.

ENDNOTES

1 Barrack Obama, nationally televised NASA speech at the Kennedy Space Center, Florida, April 15, 2010. Transcript available at http://www.nasa.gov/about/obama_ksc_pod.html

2 Sputnik sent signals to earth for approximately three weeks and Explorer three months before the batteries that enabled their transmissions expired – Sputnik burned up as it entered earth's atmosphere after three months in orbit while Explorer orbited for another 12 years before its destruction at reentry.

3 See also Roger Launius, NASA: A History of the U.S. Civil Space Program, (Malabar, Florida: Krieger Publishing Company, 1994). The author is NASA's chief historian and provides a detailed history of space events and issues.

4 Many other significant satellite and missile developments progressed at this time. The events mentioned in this paper are intended to highlight the point about military technological development.

5 See also George C. Marshall Institute, Washington Roundtable on Science and Public Policy, Forum on National Security Space: Space Issues in 2007, (Washington DC, January 22, 2007). The extreme side of the equation – the catastrophic event side – is the vulnerability to nuclear event in space or a missile strike on a space platform. As shown in the Starfish Prime example – and although there may be low likelihood of it occurring – even the possibility is a critical factor in considering space protection as North Korea and others are obtaining this capacity. Cost estimates in 2007 exceed $50 billion in damages in space from a blast similar to Starfish Prime. These costs, however, do not account for the negative effect the lost services had on activities that rely upon space assets and the earth's power grid.

6 "Operation Dominic: 1962 - Christmas Island, Johnston Island, Central Pacific," January 3, 2005, http://nuclearweaponarchive.org/USA/Tests/Dominic.html (accessed March 22, 2010).

7 Matthew Mawthorpe, The Militarization and Weaponization of Space, (Lanham, Maryland: Lexington Books, The Rowman & Littlefield Publishing Group, Inc., 2004), 31. The term "sanctuary" refers to the intent that there should be no international conflict in the domain.

8 Ibid, 15-16.

9 The actual impact of the Outer Space Treaty on using space for military purposes or even possessing weapons there is debated among experts. One major agreement, though, is that the treaty bans weapons of mass destruction in space. Another take away from the debate is that the treaty – and potential devastation from nuclear use – inhibits exploring the full potential of military use in space.

10 Brigadier General (Ret.) Rick Larned, U.S. Air Force, Colonel (Ret.) Cathy Swan, U.S. Air Force, and Lieutenant Colonel (Ret.) Peter Swan, U.S. Air Force, National Security Space Strategy Considerations, (lulu.com, 2010), 38. The authors explore space strategy developments and, in this context, recommend that now is a good time to review organization considerations. The authors indicate that the U.S. military is adaptive to imperfect management

structures and, therefore, a national space strategy is the kingpin in being able to fully implement military space power

[11] This concept of following the U.S. Air Force model for creating a space force within DoD was discussed in a non-attribution forum during the 2009 U.S. Army Space Cadre Symposium in Colorado Springs, Colorado, August 3-7, 2009. This question will be the subject of a future article by the author.

[12] The U.S. Air Force was established as a separate service on September 18, 1947. Its linage began in 1909 as the Aeronautical Section of the U.S. Army Signal Corps and continued in 1914 as the Aviation Section of the U.S. Army Signal Corps, 1918 as the U.S. Army Air Service, 1926 as U.S. Army Air Corps, and 1941 as the U.S. Army Air Service.

[13] Dr. John Sheldon, George C. Marshall Institute Fellow and U.S. Air Force Air University Visiting Professor of Advanced Air and Space Studies, telephone interview by author, April 28, 2010.

[14] U.S. Department of Defense, Rumsfeld Commission: Report of the Commission to Assess United States National Security Space Management and Organization, (Washington DC: U.S. Department of Defense, January 11, 2001), 80-81.

[15] Ibid, 22-25.

[16] U.S. Congress, Allard Commission: Independent Assessment Panel Report on the Leadership, Management, and Organization for National Security Space, (Washington DC: U.S. Congress, July 2008), 11.

[17] Ibid, ES3-ES4.

[18] Sharon Hartman, "An Inside Look at the Allard Commission … And That's the Way It Was," Army Space Journal, (Summer Edition 2009): 20.

[19] U.S. Congress, Senate, Armed Services Subcommittee on Strategic Forces, President Obama's 2011 Budget Request for Military Space Programs, March 10, 2010.

[20] U.S. Department of Defense, Rumsfeld Commission: Report of the Commission to Assess United States National Security Space Management and Organization, 22-23.

[21] Phillip C. Saunders and Charles D. Lutes, "China's ASAT Test: Motivations and Implications," Joint Force Quarterly no. 46 (3rd Quarter 2007): 39-40. This is significant because China's anti-satellite weapon hit so high in lower-earth orbit, the blast polluted space with destructive debris impacting space operations for other nations.

[22] U.S. Department of Defense, Rumsfeld Commission: Report of the Commission to Assess United States National Security Space Management and Organization, 19.

[23] Brigadier General Kurt Story, U.S. Army, Deputy Commanding General for Operations, U.S. Army Space and Missile Defense Command / Army Forces Strategic Command (USASMDC/ARSTRAT), " 'Space' on the Battlefield," presentation in open forum, USASMDC/ARSTRAT Senior Enlisted Leader Conference, Cocoa Beach, Florida, March 24, 2010.

[24] U.S. Joint Chiefs of Staff, Space Operations, Joint Publication 3-14 (Washington DC: U.S. Joint Chiefs of Staff, January 6, 2009), II-2 - II-3.

[25] Ibid, II-3.

[26] Ibid, II-5.

[27] Ibid, II-10. Space law experts indicate that the Outer Space Treaty does not impact this concept.

[28] Matthew Mawthorpe, The Militarization and Weaponization of Space, 205.

[29] General C. Robert Kehler, U.S. Air Force, Commanding General, U.S. Air Force Space Command, "Straight from Headquarters – the Air Force Space Command Commanding General," presentation in open forum, 26th National Space Symposium, Colorado Springs, Colorado, April 13, 2010.

[30] William J. Lynn III, Deputy Secretary of Defense, "Beyond the Budget: Challenges and Priorities," presentation in open forum, 26th National Space Symposium, Colorado Springs, Colorado, April 14. 2010.

[31] U.S. Congress, Senate, President Obama's 2011 Budget Request for Military Space Programs.

[32] Brigadier General Kurt Story, U.S. Army, " 'Space' on the Battlefield."

[33] Management of space assets does not follow a single line of authority. The National Reconnaissance Office manages space assets for intelligence, while most of the remaining space aspects are managed through U.S. Strategic Command and service component commands with the U.S. Air Force as the lead agency. Missile defense is also managed similarly through U.S. Strategic Command and components, with the U.S. Army in the lead. One of the recommendations from the 2008 Commission study was to streamline these procedures into DoD.

[34] U.S. Congress, Senate, President Obama's 2011 Budget Request for Military Space Programs.

[35] Ibid.

[36] Ibid.

[37] U.S. Government Accountability Office, Space Acquisitions: DoD Poised to Enhance Space Capabilities, but Persistent Challenges Remain in Developing Space Systems: Statement of Cristina T. Chaplain, Director, Acquisition and Sourcing Management (Washington DC: U.S. Government Accountability Office, GAO-10-447T, March 10, 2010), 13.

[38] Ibid.

[39] Ibid, 14.

[40] Ibid.

[41] The assertions by military leaders that space is in the "fabric" of operations and that it has changed war's nature is relatively new. It requires deeper analysis that examines the actual nature of war and whether or not impacts that come from space capabilities meet the high standards required to change war's nature. This will be the subject of a future paper by the author. As noted in this current paper, the assertions about the condition of the organization of space assets within DoD is well-documented since 2001.

[42] General C. Robert Kehler, U.S. Air Force, "Straight from Headquarters – the Air Force Space Command Commanding General."

[43] Jim Oberg, Space Power Theory, (Government Printing Office, March 1999), 10-11.

[44] Dr. John B. Sheldon, Theory of Space Power: The Perils of Strategic Analogy, (N.P.: Taylor and Francis Publishing, November 2010), 3. Page number corresponds to the draft manuscript, but Dr. Sheldon addresses this issue in chapter one of the manuscript. Dr. Sheldon provided the author a draft copy of his book for the purposes of

this paper and written permission to reference his work.

[45] Ibid, 29-30.

[46] Ibid, 4.

[47] Matthew Mawthorpe, The Militarization and Weaponization of Space, 14.

[48] Lieutenant Colonel Michael R. Mantz, U.S. Air Force, The New Sword: A Theory of Space Combat Power, (Maxwell Air Force Base, Alabama: Air University, 1995), 79. This book provides a very valuable early view of space power and its theory.

[49] Ibid, 80.

[50] Dr. John B. Sheldon, Theory of Space Power: The Perils of Strategic Analogy, 198-201. Page numbers correspond with chapter four in the draft manuscript.

[51] Jim Oberg, Space Power Theory, 119.

[52] Brigadier General (Ret.) Rick Larned, U.S. Air Force, telephone interview by author, May 6, 2010.

[53] Dr. John B. Sheldon, telephone interview by author, May 5, 2010.

[54] Matthew Mawthorpe, The Militarization and Weaponization of Space, 14-15.

[55] Dr. John B. Sheldon, telephone interview by author, May 5, 2010. On one hand, the United States as a nation relies heavily – critically – on what it obtains from space while on the other, the space environment is treated with kid gloves. It is as if there is a concern that any aggressive behaviors to protect U.S. equities in space will trigger an escalation in the potential for space war.

[56] Ibid.

[57] General (Ret.) Lance Lord, U.S. Air Force, former Commanding General, U.S. Air Force Space Command, telephone interview by author, May 4, 2010. In his comments, however, General Lord was clear that he did not see a need to create a separate space service in the military. He felt the central issue has to do with resources and that organization is a "fourth order" issue.

[58] David R. Mets, The Air Campaign: John Warden and the Classical Airpower Theorists, revised, (Maxwell Air Force Base, Alabama: Air University Press, April 1999), 31-50.

[59] Dr. John B. Sheldon, telephone interview by author, May 5, 2010.

[60] Ibid.

[61] Ibid.

[62] David R. Mets, The Air Campaign: John Warden and the Classical Airpower Theorists, 42.

[63] Ibid, 34-35.

[64] Jim Oberg, Space Power Theory, 127.

[65] General (Ret.) Lance Lord, U.S. Air Force, telephone interview by author, May 4, 2010.

[66] Dr. John B. Sheldon, telephone interview by author, May 5, 2010.

[67] Ibid.

[68] David R. Mets, The Air Campaign: John Warden and the Classical Airpower Theorists, 34.

[69] Brigadier General (Ret.) Rick Larned, U.S. Air Force, telephone interview by author, May 6, 2010.

[70] General (Ret.) Lance Lord, U.S. Air Force, telephone interview by author, May 4, 2010.

[71] Dr. John B. Sheldon, telephone interview by author, May 5, 2010.

[72] David R. Mets, The Air Campaign: John Warden and the Classical Airpower Theorists, 34.

[73] Dr. John B. Sheldon, telephone interview by author, May 5, 2010.

[74] Brigadier General (Ret.) Rick Larned, U.S. Air Force, telephone interview by author, May 6, 2010.

[75] General (Ret.) Lance Lord, U.S. Air Force, telephone interview by author, May 4, 2010.

[76] Ibid.

[77] Brigadier General (Ret.) Rick Larned, U.S. Air Force, telephone interview by author, May 6, 2010.

[78] David R. Mets, The Air Campaign: John Warden and the Classical Airpower Theorists, 34.

[79] General (Ret.) Lance Lord, U.S. Air Force, telephone interview by author, May 4, 2010.

[80] Dr. John B. Sheldon, telephone interview by author, May 5, 2010.

[81] Ibid.

[82] David R. Mets, The Air Campaign: John Warden and the Classical Airpower Theorists, 34.

[83] General (Ret.) Lance Lord, U.S. Air Force, telephone interview by author, May 4, 2010.

[84] Ibid.

[85] Brigadier General (Ret.) Rick Larned, U.S. Air Force, telephone interview by author, May 6, 2010.

[86] Dr. John B. Sheldon, telephone interview by author, May 5, 2010.

[87] David R. Mets, The Air Campaign: John Warden and the Classical Airpower Theorists, 34.

[88] Dr. John B. Sheldon, telephone interview by author, May 5, 2010.

[89] Brigadier General (Ret.) Rick Larned, U.S. Air Force, telephone interview by author, May 6, 2010.

[90] Ibid.

[91] David R. Mets, The Air Campaign: John Warden and the Classical Airpower Theorists, 34.

[92] General (Ret.) Lance Lord, U.S. Air Force, telephone interview by author, May 4, 2010.

[93] Dr. John B. Sheldon, telephone interview by author, May 5, 2010.

[94] General (Ret.) Lance Lord, U.S. Air Force, telephone interview by author, May 4, 2010.

[95] David R. Mets, The Air Campaign: John Warden and the Classical Airpower Theorists, 34.

[96] Dr. John B. Sheldon, telephone interview by author, May 5, 2010.

[97] General (Ret.) Lance Lord, U.S. Air Force, telephone interview by author, May 4, 2010.

[98] David R. Mets, The Air Campaign: John Warden and the Classical Airpower Theorists, 34.

[99] Brigadier General (Ret.) Rick Larned, U.S. Air Force, telephone interview by author, May 6, 2010.

[100] General (Ret.) Lance Lord, U.S. Air Force, telephone interview by author, May 4, 2010.

[101] Dr. John B. Sheldon, telephone interview by author, May 5, 2010.

[102] Dr. John B. Sheldon, telephone interview by author, April 28, 2010.

[103] General (Ret.) Lance Lord, U.S. Air Force, telephone interview by author, May 4, 2010.

[104] Jim Oberg, Space Power Theory, 127.

[105] Ibid.

ARMY SPACE OPERATIONS:

a Path into the Future

MIKE CONNOLLY, DIRECTOR, ARMY SPACE PERSONNEL DEVELOPMENT OFFICE

Contributors:
COL Robert "Buff" Bruce
COL Patrick Rayermann

Since its inception with OPMS XXI, Functional Area 40 (FA40) has expanded its functions, population and authorizations across the Total Army and Joint force. However, the understanding of FA40 roles and functions throughout the Army remains a challenge we must address. FA40 force management, talent development and strategic communication provide the avenues to resolve significant shortfalls and serve as the foundation for continuing to mature the career field.

Background

In 1999, Year Group 1980 and 1986 officers were notified of the first Career Field Designation Board results. These results included 20 individuals who would serve as the Army's initial FA40 Space Operations officers. Since then, FA40 has kept growing to its current 250-plus officers who fill billets from Fires Brigades to the Office of the Secretary of Defense. Although there is increased awareness in how space-based assets support the Warfighter and the value added of FA40 officers, there is an identifiable requirement to better articulate and develop the Space mission area throughout the Army. The responsibility to successfully accomplish this task rests squarely within Functional Area 40.

Since its beginning, FA40 has been very successful in developing billets and attracting technically qualified individuals to fill those billets. What is missing is a clearly defined vision of how and where officers, with the unique mission sets that FA40's have would best serve the Army. This shortcoming has led to a horizontal expansion of the functional area without consideration for the required vertical growth needed to mature as a career field while meeting the ever-changing needs of the Army.

This article is the initial step to developing and executing a path forward. Its foundation comes from a May 2010 meeting where individuals with specific FA40 and space-related interests met to discuss, express, debate and define where things have been, but more importantly, where they should be going.

Our Nation's success across the full spectrum of military operations in the 21st century requires officers and leaders who understand the application of Space-based capabilities to warfare. Senior leaders must understand what Space Operations officers do and why they are critical to Army and Joint operations. Space Operations officers are trained to educate those leaders and their staffs on all aspects of Space operations.

BG (R) Richard V. Geraci
The Journal of Army Space Operations

Force Structure

FA40-coded positions are generally in organizations and locations where the assigned officer can leverage and shape the Nation's investments in Space. As defined by LTG Kevin Campbell, FA40 billets are either shaping or operational in nature. Officers serving in operational billets specialize in integrating Space Operations into the military decision-making process. They synchronize, optimize and deconflict employment of space resources with the commander's staff and across the warfighting functions. FA40's serving in shaping positions have the unique ability to impact the future of Army Space through research and development, acquisition, policy development, instruction and personnel management. Many of these billets offer the assigned officers the opportunity to utilize their training, security clearance, education and experience to expand their influence into other space related/restricted access areas. By following recommended career paths, FA40 officers may serve in a wide variety of key and developmental assignments at the tactical, operational and strategic levels. Individual career management will insure a balance of assignments that include the operating force, generating force and broadening experiences.

Although a significant growth of FA40 billets is unlikely, the FA40 Personnel Development Office will continue supporting organizations willing to re-code an existing billet to FA40. The Personnel Development Office will also prioritize the manning of vacant billets based on published Army guidance and senior leader direction. In doing so, the risks associated with not filling a billet or filling it with an officer junior in rank must be fully understood and the decision to do so must be made with full consciousness. Assigning an officer outside of the FA40 career field must also face additional scrutiny. The Human Resource Command's FA40 Assignments Manager will follow the recently signed Army Space Personnel Development Office Policy #1 – Assignment of FA40, Space Operations Officers in determining assignments.

While the FA40 Personnel Development Office strives to place FA40s in appropriate billets, commanders throughout history have identified quality Soldiers and, without concern for their rank, military occupation or assigned billet, have moved them to positions to best serve their organization. In these cases, the fact that FA40 officers are being selected to fill critical positions outside of their career field is a testament to the quality of the career field, not an indication that the space mission is unimportant. Normally, the Personnel Development Office supports this experience broadening of FA40s to achieve operational success.

Talent Management

Many aspects of an officer's career are included within talent management. The ultimate goal is to provide an array of opportunities to develop a well-rounded officer at each grade and throughout an officer's Space Operations career. In meeting its AR 600-3 Life-Cycle management requirements, the FA40 Personnel Development Office, in conjunction with the Human Resources Command FA40 Assignments Manager, the U. S. Army Space and Missile Defense Command/Army Forces Strategic Command's (USASMDC/ARSTRAT) Future Warfare Center and Directorate of Combat Development will insure sequential assignments, training and education that let Space Operations Officers build on their experiences and knowledge while developing into successful Army senior leaders. FA40 career tracks, normally beginning within the 1st Space Brigade, will provide each individual officer a common foundation of understanding Army Space. Following their initial FA40 assignment, officers must focus on filling a Key and Developmental position at each rank and becoming Joint qualified.

The key to success at each rank is being able to build on set core competencies, for example;

- Captains must "Demonstrate effectiveness and competency in assigned space responsibilities"
- Majors must "Demonstrate understanding and application of capabilities across multiple space mission areas"
- Lieutenant Colonels must 'Demonstrate breadth of experience and competency across multiple space mission areas"

- Colonels must "Set the conditions to optimize the employment of current capabilities and shape the direction of future capabilities to enhance service, joint, interagency, intergovernmental and multinational operations"

Although only a snapshot, these examples provide insight into how defining expectations at each level solidifies the foundation of knowledge and experience that an officer needs to achieve to succeed. The FA40 Personnel Development Office will lead the effort in refining FA40 Core Competencies and ensure they are used as the basis for the professional development of Army Space Operations Officers.

Another aspect of a talent development is skill-related training. In addition to set Army and Joint Professional Military Education requirements and opportunities, the Space Operations Officer Qualification Course is mandatory for all FA40As. This Directorate of Combat Development taught training (supported by the National Security Space Institute) provides instruction of critical tasks each officer must master to serve effectively in the Army's Space community.

Following the Space Operations Officer Qualification Course and initial space assignments, officers should attend Space 300 and the FA40 Senior Leader Course that is currently being developed. As senior-level courses they build upon an officer's previous training and experience to provide the necessary information to excel in any senior-level FA40 coded position. Additionally, Training with Industry or assignment specific training such as Director of Space Forces/Deputy Director of Space Forces, Tactical Space Operations Course and the Army Force Management School, are available.

Select officers will also have the opportunity to participate in the Army's Advanced Civil Schooling program. Managed by the FA40 Personnel Development Office, this program lets officers attend an accredited civilian institution of higher education to pursue a space-related course of study. As a funded Advanced Civil Schooling student, an officer can complete a graduate degree or PhD program followed by a utilization assignment that capitalizes on the degree earned. Although not all officers will qualify for the Advanced Civil Schooling program, more than 70 percent of FA40s hold at least a masters degree. Therefore, all FA40 officers should seek to complete an advanced degree to stay competitive for promotions and critical assignments.

The final issues of talent management focus on the transparency of assignments and matching skills to positions. In order to mature as a career field and to compete with other, more established branches, FA40s must take the appropriate actions to select the 1st Space Brigade and 1st Space Battalion commanders through the established Centralized Selection List process. Identifying these positions as a Centralized Selection List provides creditability and visibility throughout the Army and insures that those individuals selected to command will be similarly managed as other Centralized Selection List post-commanders. Additional positions available to FA40s must also be acknowledged as equal in stature to battalion and brigade command positions include implementing specific instructions to selection/promotion boards. The Chief, Space Support Element at the corps level must be viewed in the same manner as the battalion commander with the individual selected to fill such a position scrutinized to the same standard. Similarly, the FA40 colonel selected to fill the Department of the Army G3/5/7 Chief of Space and Missile Defense Division must meet the same standards as the 1st Space Brigade commander.

The Army Space Personnel Development Office Space Cadre Tracking Tool will be enhanced to accurately track the space experience of all Space Cadre members, including FA40s. Although maintaining the information is ultimately the individual's responsibility, the Army Space Personnel Development Office will provide reminders and opportunities for individuals to update their information. The use of this tool can assist the Senior Leader Division, FA40 Human Resources Command assignments manager and the Army Space Personnel Development Office in the selection of individuals to fill positions requiring specific experience, training or education.

Communications: Space Superiority = Mission Success

The benefits of space-based capabilities have become ubiquitous and commonplace for most societies. Financial transactions, communications, weather forecasting and precise navigation are just a few examples of the daily services that benefit heavily from space-related capabilities and technologies. The ubiquity of these services and the reality that they generally are available without "touching" their on-orbit satellites seem to have led to the people who benefit from them realizing that space is important while concurrently perceiving that it does not really require their active engagement to benefit them. This perception has promoted many in the Army to question the Army's need for space and the Army's need for the associated roles and benefits of having an organic cadre of FA40s. Overcoming these perceptions is the challenge facing the Army Space community and one that must start with a Strategic Communications Plan that incorporates a common message, appropriate themes and identifies specific tactics that are synchronized with key external and internal audiences.

The effects of Combat Arms branches are easily understood, and the Army Space Cadre must strive to have the benefits of space as readily and easily understood by their fellow Soldiers. Long-term success in this endeavor - to create the environment, in which the warfighter understands that in order to shoot, move and communicate more adroitly and effectively than an adversary in the 21st century requires the inclusion of space-enabled capabilities and technologies, must begin at multiple levels and venues. At the unit level, Space Operations Officers must have a broad comprehension of the difference they make to the Soldier and the value of FA40 senior-level positions. They must effectively articulate their worth in a manner that it is clearly understood at the lowest common domina-

The Army Space Personnel Development Office Space Cadre Tracking Tool will be enhanced to accurately track the space experience of all Space Cadre members, including FA40s.

tor and does not hide behind security classifications or technical obfuscation. During Professional Military Education attendance, FA40's should take every opportunity to enlighten their peers on all aspects of the warfighting benefits of space-based capabilities. Examples of such opportunities are: the inclusion of space in exercises, drills, presentations, papers and discussions. Senior leaders must be provided talking points highlighting specific examples of where and how space has positively impacted or could have impacted operations. The eventual goal is to have the newly graduated Space Operations Officer Qualification Course FA40, the commander, USASMDC/ARSTRAT and every other member of the Army Space Cadre providing a version of the same message, tailored to their venue. Whether at a national-level conference, a senior service college, captains' career course, an officer professional development session or a pre-commissioning event at the U.S. Military Academy or Reserve Officer Training Corps, every opportunity must be exploited and harnessed to educate the audience at such forums about the value that space-based capabilities bring to the Army.

The bumper sticker "Space Superiority = Mission Success" may not be the primary theme eventually agreed upon, but it does provide an example of the type of phrase that is easily understood and once one is adopted, can and should routinely be used by the FA40 community to convey and reinforce that space power has become essential to land warfare in the 21st century just as air power became essential in the 20th century.

The Army Space Personnel Development Office will work with the USASMDC/ARSTRAT Public Affairs Office and Space Operations Officers from across the career field to formulate and implement a Strategic Communication Plan.

Conclusion and Recommendations

The current health of the Army's FA40 community, although not without concerns, is strong. The number of officers making FA40 their first choice on the recent 4-year and 7-year Career Field Designation Board, the number selecting FA40 through the Voluntary Transfer Incentive Program, the numbers inquiring about recall to active duty and the interest from Air Force Officers in inter-service transfers all lead to the Functional Area's ability to recruit qualified and technically competent officers. However, as highlighted throughout this article, there are numerous issues that must be addressed with a responsible organization assigned to each.

It is recommended that the initiation of the following tasks be accomplished, by the assigned organization, within the next twelve months.

- Develop and publish a vision for the future of Functional Area 40 (ASPDO)
- Formulate and implement a FA40 Strategic Communication Plan (ASPDO/PAO)
- Define Internal and External audience(s)
- Common Theme
- Consistent Messages
- Talking Points (Developed and coordinated as each event merits)
- Packaged material (e.g., multi-media; instances/situations/vignettes illustrating the relevance of space and/or the Army Space Cadre to the Army) upon which all FA40s can draw when asked to present a briefing whether to an Officer Professional Development session, a public trade show, a local chamber of commerce, a youth group or others.
- Specific tactics (synchronized with USASMDC/ARSTRAT and 1st Space Brigade strategic communication plans)
- Define core competencies (ASPDO/DCD/FA40s)
- Select 1st Space Brigade and 1st Space Battalion commanders through Centralized Selection List process (ASPDO/HRC)
- Expand/increase FA40 billets (ASPDO/HRC)
- Manage officers assignments, training and education opportunities to insure successful Army senior leaders (HRC/Individual FA40)
- Develop the FA40 Senior Leader Course (DCD)
- Enhance use and capability of the Space Cadre Tracking Tool to accurately track experience of all Space Cadre Members (ASPDO/SLD/HRC/Individual Space Cadre members)
- Develop and administer exit surveys for FA40s leaving the Army at the 20-year point of their career (ASPDO/HRC)

Collectively as a team, all members of the FA40 community need to contribute to our overall career field success. Through these contributions, our Army and its key senior leaders may continue to learn about the effects we bring to the table and acknowledge the absolute importance and crucial role that space support plays in enabling our warfighters so that they remain Army Strong in the theater of combat today and in the future.

Joint Operational Space Reflections from a Deputy Director of Space Forces DDS4

BY LTC VICTORIA L . MIRALDA , FWC/DCD

Thanksgiving Day 2008 I touched down in Southwest Asia. My comrade in arms and host sponsor LTC Jay Curry was waiting to ensure I had a friendly face to greet me and get me to my new quarters. LTC Curry and I had corresponded often in the previous year as he served as the Deputy Director of Space Forces (DDS4), for U.S. Central Command. Thankfully, this ensured I was familiar with the mission and structure of the command I was assigned to, Headquarters U.S. Air Forces Central Command, as well as the command's theater responsibilities. This article will highlight my DDS4 experience and relevant aspects leading me to believe this is a key Joint developmental Space Operations leader position. The purpose of this article is to share what I observed broadly with those seeking operational level Joint experience and an expanded perspective of space operations.

The DDS4 position, in my personal opinion, is second only to battalion command as an opportunity for joint developmental experience for FA40 lieutenant colonels. One example illustrating just one event indicative of the breadth of duties and intense operational level professional development exposure the position affords an FA40 officer follows;

The first night my Director of Space Forces (DS4) began his long overdue rest and recuperation, a satellite conjunction occurred, literally, satellites collided. My service background did not matter at this point, I was the acting DS4 for U.S. Central Command and the rapid coordination and assessments required demanded a theater-wide understanding of military and commercial SATCOM architecture reliance's and loss impacts to warfighting systems, U.S. and Coalition. At this point I was grateful for both the Signal Corps background and Telecommunications Master's I had under my belt but also the Space 300 and Joint Test and

Far left, LTC Victoria Miralda and members of the Combined Air and Space Operations Team. *Photo courtesy LTC Victoria Miralda*

Evaluation time I'd been afforded. The variety of FA40s jobs I had held to date ensured I was armed with knowledge of the support teams I could rely on as reach-back for timely information and any elevation of requirements.

Not only does the DDS4 serve as the Deputy to a senior Air Force Space Officer, the DS4, that officer also functions as a key joint space advisor to Combined Force Air Component Commander, and Combined Air and Space Operations Center staff including Coalition leaders. Because the Combined Force Air Component Commander is also the U.S. Central Command Space Coordinating Authority, this includes direct coordination with land and maritime components as well as the local Battlefield Coordination Detachment and air component staff. This means Maritime or Marine Corps requirements alike demand the same responsiveness and prioritization which is why the DS4 works closely with the Navy, Marine, Battlefield Coordination Detachment, and Special Operations Liaison Officers. In addition to joint duties, the DDS4 is expected to be an expert on Army space capabilities, command and control, and reach-back organizations, facilitating productive space support, unity of effort, and effects coordination for the entire U.S. Central Command area of responsibility. Additionally, the DDS4 is often the lead coordinator for actions with each of the service components and U.S. Central Command as well as reach-back support to Joint Functional Component Command-Space. The DS4 crew is primarily focused on the daily support to forward deployed units, coordinating their requirements within the Combined Air and Space Operations Center and back to the Joint Space Operations Center to ensure the units are provided responsive space support and effects throughout the planning and execution process. Where Service seams or misunderstandings can arise, the DDS4 has the responsibility to inform, educate, learn, and help shape joint mission success. As the senior Army space officer serving in a joint position in the Combined Air and Space Operations Center, the DDS4 works closely with the Battlefield Coordination Detachment team. There are times when this requires consideration and advocacy of Joint, rather that Service perspectives, challenging the DDS4 to grow as a staff officer and consider theater-wide operational priorities.

The role of DDS4 allows an Army space officer tremendous opportunity to support the space forces and liaison officers down range and bring to the Combined Air and Space Operations Center team an organic Army Space perspective. In executing this mission the DDS4 has the freedom to travel downrange to understand first-hand supported unit requirements and ensure the Combined Forces Air Component Commander, the designated Space Coordinating Authority, is meeting theater space support expectations and space related support needs. The Space Support Element Chiefs at Corps and Division levels, as well as the Combined Forces Air Component Commander's Space Liaison Officers at coalition headquarters, are all key allies in ensuring this teaming is successful. Often the personal relationships built during visits reinforce coordination lines that ensure future success when theater space forces face difficult challenges. These experiences also build mutual respect for the mission and environment faced by our forward deployed space professionals, including each command's unique objectives, planning and execution priorities, constraints, and decision timelines. In particular, the Air Force staff I worked with seemed to both appreciate and enjoy the exposure to Army personnel and Corps and Division operations centers. Many shared that their time spent together downrange provided a new perspective of the criticality of responsive support and an increased understanding of what and why space effects were being requested. All of this led to closer unified teamwork for our small community and increased ability to share best practices across the area of responsibility.

In addition to the tremendous opportunities highlighted above, the year a DDS4 spends under the tutelage of an experienced space colonel and working with the two to three teams of Air Force space professionals is vast in both technical and professional growth. The Space Coordinating Authority's space team often gathers with their various backgrounds of expertise to white board and debate solutions to current operational issues. This teaming includes not only the DS4 staff subject matter experts but also draws upon space officers from the Combined Air and Space Operations Center divisions, some of them being U.S. Air Force space weapons officers (often

One change I believe would make them even more effective would be the addition of an FA40 in this Joint position, as an organic member of the Space Coordinating Authority's DS4 staff.

called "patches"). Having personnel from the various deep backgrounds was powerful in rapidly working options to resolve or mitigate space support issues or challenges. A year to focus strictly on operational space issues surrounded by subject matter experts who work together in support of all Service components, is a rare professional opportunity all FA40s should be eager to experience. Prior to my deployment, I had no idea of the degree to which the position would expand my perspective and education and am therefore grateful for the time I served in the U.S. Central Command Combined Air and Space Operations Center. While I encourage FA40s to seek this position, I also encourage them to absorb every bit of joint, senior staff, and technical space expertise possible before serving in it. DDS4s are best prepared when experienced through a variety of space duty positions and training experiences. An example is the valuable "qualifying" event planned for my deployment preparation during which I served as a DDS4 in a major U.S. Strategic Command exercise, Terminal Fury.

The DS4 staff has proven they serve the theater well in executing the Combined Forces Air Component Commander's daily tasks and fulfilling his responsibilities as the Space Coordinating Authority. One change I believe would make them even more effective would be the addition of an FA40 in this Joint position, as an organic member of the Space Coordinating Authority's DS4 staff. This addition would benefit both the joint depth of the staff and provide an Army space officer as an action officer facilitating communication with the Army Space Support Teams and Space Support Elements as a crew member. The DDS4 executes distinctly different duties than the crew and it would be highly effective for an FA40 to join them in their day to day efforts, not to mention the tremendous professional development that would result for that FA40. To start moving in this direction, during my time as DDS4 the Director of Space Forces coordinated with both the Battlefield Coordination Detachment and U.S. Army Central Command to provide office space for the current Detachment space officer to be collocated with the DS4 staff, ensuring improved and timely information flow and teaming. In addition to this action, placing the two Army space Noncommissioned Officers currently in the Battlefield Coordination Detachment at the Combined Air Operation Center's Combat Operations Divisions Space cell position, would further facilitate seamless response to space support requests and ensure full integration of their unique expertise on land component operations. By placing these personnel together the joint space effort is increasingly unified at the operational level and enables the theater Space Coordinating Authority to more rapidly respond to emerging land component operational situations. It also establishes a rare opportunity for our Senior Noncommissioned Officers to gain joint experience, trading best practices with their Air Force counter-parts on a daily basis.

Finally, there is persistent discussion about the DS4 position and the role it plays in execution of the responsibilities of Space Coordinating Authority for Geographic Combatant Commands. While the DS4 is a construct and position developed in Air Force Doctrine, the DS4 and staff roles and responsibilities have clearly evolved to be synonymous with joint responsibilities and its' fulfillment of designated Space Coordinating Authority responsibilities in U.S. Central Command. There, space responsibilities and authorities are specifically delegated to a Joint Commander responsible to ensure space-enabled effects support all component and joint force requirements. I observed that execution first hand for over a year and can attest that the position is inherently Joint in contributions to plans, priorities, and execution. While COD-Space provides the 24-hour-a-day Space Coordinating Authority operations node, the DS4 and staff are held responsible for integrating and applying space expertise throughout the planning and joint targeting cycle to ensure comprehensive support on behalf of all Services operations. While the Combined Air and Space Operations Center is a highly effective node to bridge strategic capabilities application with operational and tactical effects, I personally believe it is time to earnestly enter dialogue to move toward placing a senior Army FA40 colonel in the position of theater DS4 or "Deputy Space Coordinating Authority," with rotation of the position between Services. As we grow to mature integration of emerging mission areas such a cyberspace and to accommodate an ever-increasing demand for non-kinetic effects integration across currently disparate mission sets, we must also drive toward flexible joint manning of key operational level positions such as the DS4 as a lead non-kinetics effect integrator. While debate surrounding the topics of space coordination in the joint community and cyber integration are healthy and need to continue, one thing is indisputable, empowered theater space forces are successful in enabling operational success.

I personally recommend the DDS4 experience to all FA40s desiring a challenging and intense assignment resulting in professional growth at the joint operational level. I left the DDS4 position with a more seasoned understanding of joint operations, service capabilities and cultures, and operational warfighting. These all resulted in my deep appreciation for the U.S. Central Command leadership of all Services, regardless of unique mission areas of expertise.

BIO

LTC Victoria L . Miralda

is a U.S. Army Space Professional and U.S. Signal Corps Officer. She graduated with a Bachelor of Science degree from the United States Military Academy, has a Master of Science degree in Telecommunications from the University of Colorado at Boulder, and is a graduate of the U.S. Army Command and General Staff College and the 82nd Airborne Jumpmaster course. Her space education includes the FA40 Space Operations Officer Qualification Course, and National Security Space Institute's Counter-Space Planning and Integration Course, Space Executive Officer's Course, and Space 300 Course.

LTC Miralda has over 20 years of satellite communications, radio communications, switching, and computer network defense experience. Her key duties include command of all XVIII Airborne Corps long-haul SATCOM and Tropospheric radio capabilities and service on a Joint Test and Evaluation (JT&E) team for Joint Space Control Operations during which time she was selected as the National Defense Industrial Association Military Tester of the year. Following her duty on the JT&E, she served as the Executive Officer to the USASMDC/ARSTRAT Deputy Commanding General for Operations and then as the 1st Space Brigade S-3 before deploying from November 2008 to December 2009 as the U.S. Central Command Deputy Director of Space Forces. LTC Miralda currently serves with USASMDC/ARSTRAT in the Future Warfare Center, Directorate of Combat Development and will begin studies this fall at the Industrial College of the Armed Forces in Washington D.C.

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in Counter Insurgency with Commercial Imagery

BY MAJ MARK COBOS, 1ST SPACE BATTALION S3

The first of GEN Stanley McChrystal's Eight Imperatives for Success in Afghanistan addresses the basic tenet of modern counterinsurgency: "We must protect and partner with the security forces, tribal and governmental leaders, and local councils to build their capacity to secure their own countries and reinforce local institutions." In fact, the fundamental core of Coalition success in counterinsurgency operations in Afghanistan and Iraq is this ability to form meaningful partnerships that help to advance multiple lines of operation in parallel. Unfortunately, self-imposed classification barriers are often preventing our Warfighters – captains, lieutenants, and sergeants – access to some of the most useful tools in our Counter Insurgency kit bag, not only decreasing the effectiveness of local partnerships with Afghans and Iraqis but sometimes with other coalition allies as well. As we know, pictures are worth a thousand words, and unclassified imagery provided by the Army's 1st Space Brigade Commercial Imagery Team (CIT) can be openly shared with local security partners, tribal leaders, municipal department managers, or coalition allies and is an increasingly important tool in partnership operations.

As the company commander for the CIT charged with supporting the city of Rutbah in Anbar Province, I quickly learned that the vast majority of our police force, municipal engineers, city council subcommittee leaders, muqtars, tribal leaders, and pretty much anybody with whom my platoon and squad leaders needed to partner were … not very good at reading maps. It was a major challenge to find a local leader who could read our military maps, even in the areas they lived in for decades. Simple cultural differences yield significant barriers to partnership efforts.

However, civilians who could not read a map could report Improvised Explosive Device locations and cache sites using Army-provided unclassified imagery. Our efforts to plan operations with local police using a map and sand table resulted in mutual frustration until imagery products allowed them to visualize the battlefield. We coached the City Council's Infrastructure Subcommittee and the Water Department Manager on their proposal for a new city-wide water distribution system ahead of their meeting with the State Department's Provincial

Partnerships at the local level can be greatly enhanced by sharing a common operating picture using recent commercial imagery from the Commercial Imagery Team.

Reconstruction Team. Their proposal seemed destined for failure for lack of detail and project management until we overlaid the plan on a massive picture of the city at half-meter resolution. Our nascent Agricultural Subcommittee developed the details of the government seed distribution plan using recently acquired commercial imagery of farmland throughout the district. Commanders and platoon leaders reading this article undoubtedly understand the benefits of changing their FBCB2 (Force XXI Battle Command, Brigade-and-Below) monitors from map to imagery to get a point across to someone on the battlefield that is beyond the comprehension of a frustrated interpreter.

Close partnership activities often require the use of unclassified imagery products, but much of the imagery obtained from National Technical Means can only be classified as low as Secret, releasable to three or four of our closest Coalition Allies. Although National Technical Means imagery is crucial to our intelligence collection efforts, it provides little to no assistance to local partnerships because a commander cannot lay this imagery on the hood of a HMMWV and plan a joint operation with local security forces or tribal leaders. Our attempts to teach security forces, municipal engineers, and ambulance drivers to use Google Earth were only marginally effective because the database lacks many of the areas in which we operate and much of the imagery is outdated. Our battalion and company commanders, platoon leaders, squad leaders, and battlefield partners require access to high resolution unclassified imagery taken only days or weeks from their request in order to enhance their partnership efforts at the local level.

High resolution, unclassified commercial imagery can be quickly obtained by warfighters directly from the Army Commercial Imagery Team located in Bahrain and can greatly enhance local partnership efforts. The Commercial Imagery Team has a service-level agreement with National Geospatial-Intelligence Agency that allows immediate archive of commercial imagery collects from two large commercial vendors, DigitalGlobe and GeoEye. The imagery archive grows by several terabytes each month with updated collections of half-meter panoramic and multi-spectral imagery of requested terrain. Requests from a battalion or brigade for a new collect can be delivered in as few as 24–36 hours and recently archived imagery can be delivered almost immediately, all unclassified and capable of sharing with local partners.

Deployed units can contact National Geospatial-Intelligence Agency or the Commercial Imagery Team to request an account to the Rapid Delivery of Online Geospatial-Intelligence and view locations and metadata of recently imaged areas. With this information units can directly contact the Commercial Imagery Team and request specific imagery to suit their specific requirements. The Commercial Imagery Team will package imagery requests as a PDF, MrSID, GeoTIFF, NITF or JPEG2000 and send the imagery to the requesting unit, who can then manipulate the image with icons denoting hospitals, schools, municipal nodes, mosques, or whatever unclassified information is necessary to assist in partnership operations. The Commercial Imagery Team also sends Mobile Training Teams to Afghanistan and Iraq to teach TALONVIEW and Google Earth classes to requesting units and Afghani/Iraqi governmental organizations.

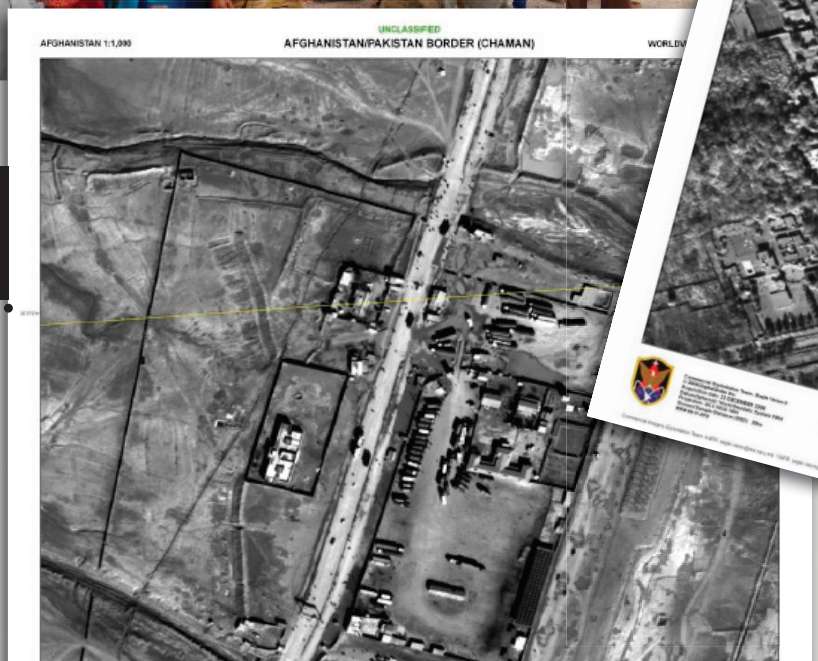
In the "ISAF (International Security Assistance Force) Commander's Counterinsurgency Guidance," GEN McChrystal talks about partnering with the Afghanistan National Security Force at all echelons:

Build their capacity to secure their own country. Foster ownership – their success is our success. Live and train together, plan and operate together. Share the same battle-rhythm and information. Integrate your command and control structures. Put them in the lead and support them, even before they think they are ready. Coach them to excellence and they will amaze you with how quickly they take charge.

Partnerships at the local level can be greatly enhanced by sharing a common operating picture using recent commercial imagery from the Commercial Imagery Team. Partnerships sharing a common operating picture using unclassified imagery are much more likely to achieve GEN McChrystal's partnership imperative and can help commanders leverage existing capabilities to overcome language and culture barriers. Units can request products from their local National Geospatial-Intelligence Agency–Geospatial Support Team, an Army Topo Team or directly from the Commercial Imagery Team by e-mail at eagle.vision@me.navy.smil.mil or via DSN at 318-439-6215. Commercial Imagery can also be downloaded from the Unclassified National Information Library Web-based Access and Retrieval Portal at https://warp.nga.mil. Questions concerning the scope of Commercial Imagery Team capabilities should be addressed to the 1st Space Brigade's Commercial Imagery Cell (Jeffrey.lakey@smdc-cs.army.mil; DSN: 692-8742/1139) or the 1st Space Battalion S3, MAJ Mark Cobos (mark.cobos@smdc-cs.army.mil; DSN: 692-1905).

CIT: WE GOT IT COVERED

The Commercial Imagery Teams are a part of U.S. Army Space and Missile Defense Command/Army Forces Strategic Command's 1st Space Battalion. The primary mission of the Commercial Imagery Teams is to provide unclassified commercial imagery to U.S. and coalition forces, as well as other government agencies. Because their products are unclassified, the Commercial Imagery Teams are able to reach broader audiences and have even generated products for the Afghan and Iraqi National armies. In addition to their wartime efforts, the Teams contribute products in support of natural and manmade disaster relief efforts around the world.



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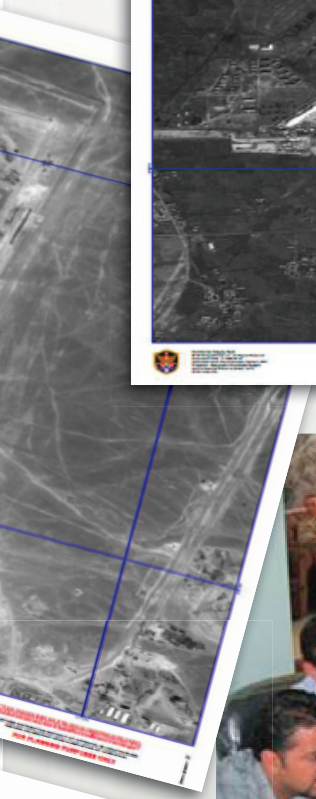

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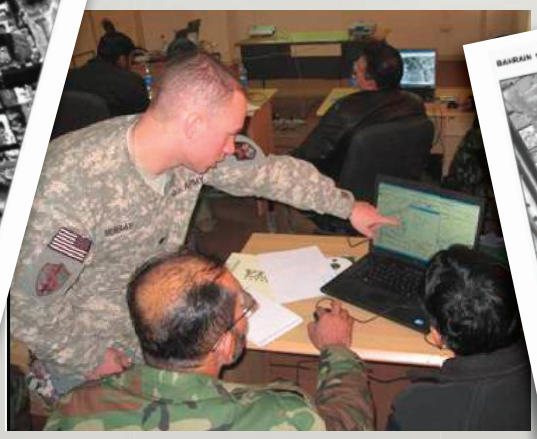

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CONNECTING THE FORCE FROM SPACE:

The IRIS Joint Capability Technology Demonstration

MIKE FLORIO, DAVID HOTOP, STEVEN GROVES, KIRK DAVIS AND RICH FARRELL

A member of the U.S. Army's Asymmetric Warfare Group during an operations demonstration.

The U.S. Army Space and Missile Defense Command Future Warfare Center Battle Lab's quest to find quality technology for the soldier now focuses on innovative space communication capabilities that could close the digital divide. The Space and Missile Defense Battle Laboratory is assessing a commercial communications concept called IRIS for the Office of the Secretary of Defense. IRIS is an acronym for Internet Protocol Routing in Space. As the Operational Manager for the IRIS Joint Capability Technology Demonstration, U.S. Army Space and Missile Defense Battle Lab is fast approaching the culminating demonstration that will provide an assessment of this new commercial capability for the Department of Defense.

Joint Capability Technology Demonstration is an Office of the Secretary of Defense initiative to assess technologies for their usefulness to the warfighter. This initiative started almost three years ago when the Commander of the U.S. Strategic Command sought to quantify new concepts in connectivity and acquisition strategy. An industry consortium led by Cisco Systems and Intelsat General Offices proposed to General James Cartwright III, U.S. Marine Corps (the U.S. Strategic Command Commander at the time) to launch an internet router into geosynchronous orbit. The industry consortium explained that

One of two operational demonstrations was conducted on the USCG's High Endurance Cutter 270 Sherman. *Images provided by Mike Florio*

IRIS could provide cost effective connectivity to both commercial and military customers. The Office of the Secretary of Defense embraced the concept by authorizing a U.S. Strategic Command sponsored Joint Capability Technology Demonstration unlike any in the past. Rather than Department of Defense dictating requirements to industry, the consortium would design, develop and launch the capability at its own expense to meet their market forecast. Consequently, given a commercially viable capability, the Joint Capability Technology Demonstration would assess the potential of this capability for military utility.

Putting the Joint in Joint Capability Technology Demonstration, we have two sponsors, both U.S. Strategic Command and the Defense Information Systems Agency. We also have three managers contributing to this Joint Capability Technology Demonstration:

- The U.S. Air Force Space and Missile Systems Center as the Technical Manager;
- The U.S. Army Space and Missile Defense Command as the Operational Manager
- The Defense Information Systems Agency Program Executive Office, SATCOM and Teleport Services as the Transition Manager

The Operational Management team of the IRIS Joint Capability Technology Demonstration determined early on to implement a crawl-walk-run strategy for this assessment. This strategy consisted of one Laboratory Demonstration for the crawl phase, two Operational Demonstrations for the walk phase and a final on-orbit Demonstration for the run phase. This strategy allowed the Joint Capability Technology Demonstration to mitigate risk, maximize lessons learned and minimize cost. This approach provided invaluable insights into net centric operations and tactics, techniques and procedures from the Combatant Commanders.

In the crawl phase, Operational Demonstration 1 focused on characterizing the router and the programmable satellite Internet Protocol modem performance in a controlled environment. The IRIS payload was emulated in the Massachusetts Institute of Technology–Lincoln Laboratories. This gave us the opportunity to understand the waveform, the proposed capability and its impact to net centric operations. In the walk phase, there were two Operational Demonstrations, one maritime and one cross-Atlantic. Both were very successful and provided significant technical and operational data. All three Operational Demonstrations were the foundation for the final on-orbit Operational Demonstration in the spring of 2010.

During Operational Demonstration 2, a U.S. Coast Guard high endurance cutter used the IRIS architecture to simulate the IRIS capability from a domestic teleport. This enabled the U.S. Coast Guard Cutter Sherman to become the first cutter to perform a video teleconference between ship and shore while underway. Another innovation made possible by these new concepts included a live video "interrogation" of an individual from

Artist's depiction of the IRIS satellite in orbit.

ship to shore. The critical lesson learned was that linguists could be based in sanctuary and conduct real-time interviews of suspects in custody anywhere in the world.

During Operational Demonstration 3, the NATO Consultation, Command and Control Agency and the U.S. Army Asymmetric Warfare Group conducted Information Operations aimed at achieving the goals of a Civil Military Cooperation operational scenario. The cross-Atlantic demonstration highlighted the value of robust communications down to the tactical edge and enabled Civil Military Cooperation and Information Operations in a Peace Keeping exercise. NATO Consultation, Command and Control Agency expressed the need for an IRIS capability with the following lessons learned from the Operational Demonstration 3 success:

- Optimized transponder access by control at Layer 3
- Improved Information Assurance due to selective multi-beam routing
- Avoidance of satellite double-hop connections between different Areas of Responsibility.

The fourth Operational Demonstration is called Operational Demonstration 4 and occurs this spring. Operational Demonstration 4 user groups include the U.S. Army Signal Center, the U.S. Southern Command, the Royal Netherlands Navy, the U.S. Coast Guard and NATO Consultation, Command and Control Agency. This on-orbit assessment will take place primarily in the Caribbean, with remote stations both in Europe and the U.S. East Coast. These user units will exercise the IRIS architecture and equipment both ashore and afloat. Based on lessons learned from the three previous Operational Demonstrations, Operational Demonstration 4 could very well provide revolutionary collaboration capabilities from the strategic corporal in the field all the way up to the Three Star in any major headquarters.

The IRIS Joint Capability Technology Demonstration is leveraging an existing, well-funded commercial effort at a very low cost to the Department of Defense. The IRIS Joint Capability Technology Demonstration will provide an excellent source of data on space-based Internet Protocol networking. Operational Demonstration 4 should provide a wealth of

Mike Florio and LTC Dennis Brozek in front of USCG Cutter Sherman's IRIS antenna.

VIP Day during Operational Demonstration 3 with the NATO Consultation, Command and Control Agency.

knowledge on commercial satellite IP services. If the IRIS commercial venture has utility for the Department of Defense, U.S. Army Space and Missile Defense Command will once again provide an innovative way forward in connecting the force.

As internet and networking technology continues to proliferate on a global scale, commercial efforts like IRIS hold the promise of providing affordable, commercial, Internet Protocol-enabled communication services. This technical capability could improve Department of Defense effectiveness in supporting a truly joint, interagency, and international effort and provide timely information to the edge. If the IRIS commercial venture has utility for the Department of Defense, U.S. Army Space and Missile Defense Command will once again have provided an innovative way forward in connecting the force from space.

Intelsat 14 on the pad

Mike Florio,
NSPS-3, Internet Routing in Space Joint Capability Technology Demonstration Operational Manager, Space and Missile Defense Battle Lab, Colorado Springs, Colo.

David Hotop,
Task Lead for the IRIS JCTD, Camber Corporation

Steven Groves,
Lead Scientist for the IRIS JCTD, Camber Corporation

Kirk Davis,
Senior Systems Engineer, Camber Corporation

Rich Farrell,
Analyst, Camber Corporation

Camber Corporation
provides SETA support on the IRIS JCTD for SMDBL

AEROSPACE MEDICINE - SPECIALISTS -

Relevant and Ready to Army Space Operations

BY COL JOHN P. ALBANO, ARMY ASSOCIATE DIRECTOR, USN AEROSPACE MEDICINE RESIDENCY PROGRAM

Recently, the Army Space Cadre Mobile Training Team from U.S. Army Space and Missile Defense Command/Army Forces Strategic Command's Future Warfare Center Directorate of Combat Development (FWC DCD) traveled to Pensacola, Fla., to train Army and Navy residents in aerospace medicine the fundamentals of Army Space Operations. The FWC DCD Trainers conducted the 40-hour Army Space Cadre Basic Course. The intent was not to give an orientation to Space capabilities for medical applications, but to indoctrinate highly trained and motivated medical professionals into the military Space culture. Building on this foundation, they could apply medicine within that cultural framework. Unlike traditional clinical medicine, which focuses on the care and treatment of patients with disease and injury, aerospace medicine is occupationally focused and preventive in application. Health maintenance with minimal therapeutic intervention becomes the sine qua non. In the context of air and space, it is concerned with normal (i.e. healthy) physiology in an abnormal environment.

Since the early days of powered aeronautics, the flight surgeon was involved with assessing human factors in the military application of aircraft. While demonstrating the capabilities of the Wright Flying Machine, Lieutenant Thomas Selfridge crashed and suffered massive and fatal head trauma. The flight surgeon, on the accident investigation board, recommended that head protection be developed and worn by all aviators. Later, high aircraft accident rates due to pre-existing medical conditions dictated medical standards. Rapidly expanding technology increased the speed, altitude, performance, and complexity of the aircraft. Research into human protection and performance ensued. Flight surgeons were undeniably integral to the aviation culture.

Space: Manned and Unmanned

In much the same way, flight surgeons were historically associated with the space culture…manned space flight. Space Cadre introductory courses chronicle the space age, including the "race to the moon." As engineers worked the development of lift and application of orbital physics, flight surgeons aided other engineers with protecting the astronaut, allowing him to perform critical tasks. Both engineers and flight surgeons required in depth knowledge of the hazards in the space environment and were concerned with the effect of that environment on their respective systems (the vehicle and the human).

Flight surgeons were also involved in astronaut training on earth and monitoring astronaut health while in space. Most importantly, flight surgeons were responsible for determining astronaut fitness for space duty. Their overall mission was to maintain the astronaut's health and "keep him in the game." Normally, the flight surgeon's involvement was transparent and his measure of success was the astronaut boarding the space vehicle. At times, the flight surgeon "grounded" the astronaut, whose medical condition put the astronaut or the mission at risk. A classic example is when Ken Mattingly, of Apollo 13, was grounded for measles exposure, two days before launch.

Publicly, considerable emphasis has been placed on the manned space missions. July 2009 marked the 40th Anniversary of man's landing and walking on the moon. October 2008 celebrated NASA's 50th Anniversary as a government organization dedicated to space exploration. Local book stores filled the shelves with texts that recounted NASA's crowning achievements in both engineering and health sciences.

Not well known was that two years after NASA's establishment, the entire Army Ballistic Missile Agency was transferred to NASA to become the nucleus of the agency's space program. Although always integral to human space exploration, Army space went from an organization focused on developing an effective counter to missiles, to the current organization as the Army Service Component Command to U.S. Strategic Command focused on exploring and exploiting the opportunities of space and meeting the challenges of missile defense. (General Order 37 redesignated USASMDC/ARSTRAT as an Army Service Component Command vice Major Command). This organizational evolution was the direct result of the Army and Joint warfighter's increasing reliance on space and was reflected in the Commission to Assess U.S. National Security Space Management and Organization, DoD 5101.2 Executive Agent for Space, and Presidential Directive 49. What role, then, does the flight surgeon have in such a military organization?

Flight Surgeons and Aerospace Medicine Specialists (aka Residents in Aerospace Medicine)

There are two types of flight surgeons, the basic level flight surgeon and the aerospace medicine specialist. The difference between the two is akin to the Space Enabler and Space Professional. Very often, the term RAM (resident in aerospace medicine) is synonymous with aerospace medicine specialist because residency is the path to become a specialist and "RAM" is easier to remember and articulate. For the young Army physician, who has completed a hospital-based internship, training in aerospace medicine starts with the Army Flight Surgeon Primary Course conducted at United States Army School of Aviation Medicine. This service specific six-week course culminates in the designation as an Army Flight Surgeon and the award of the Army Flight Surgeon badge. The course prepares graduates for duty as an Aviation Battalion Surgeon and covers basic concepts in aerospace physiology, aeromedical evacuation, mishap prevention and investigation, aeromedical policy and administration, and brigade medical planning and support.

The next higher level of medical training is at an Accreditation Council for Graduate Medical Education approved residency program in Aerospace Medicine. Aerospace Medicine was recognized as a medical specialty in 1953, four years before Sputnik! An interesting side note is that Aerospace Medicine was recognized as a specialty two and a half years before Occupational Medicine, a companion Preventive Medicine field.

The Aerospace Medicine Residency training is three years long and the core competencies are :

- Manage health status of individuals working in all aspects of aerospace environment
- Apply and develop physical standards for aerospace duty
- Promote aerospace passenger health, safety, and comfort
- Facilitate optimum care of patients transported in the aerospace environment
- Apply human factors/ergonomic concepts to the aerospace environment
- Promote aerospace operational safety and mishap prevention
- Interpret, integrate, and/or perform aerospace medical research

Training includes :

- Pre-requisite Masters of Public Health degree
- Piloting fixed and rotary wing aircraft
- Aviation Safety
- Accident investigation
- Strategic and tactical air medical evacuation
- Disaster Medicine
- Civil Aviation Medicine
- Space Medicine
- Hyperbaric Medicine
- Physical examinations and qualifications
- Clinical aerospace medicine
- Travel or global medicine
- Aerospace Medical Research
- Presentation at the Aerospace Medical Association Annual Scientific Meeting

Missing from the list (until just recently) was Space Operations. The resultant knowledge and skills make the aerospace medicine specialist operationally oriented and preventive in nature. The practice of aerospace medicine is multidisciplinary, extending into the fields of basic science; physics, chemistry, mathematics; and the engineering disciplines: aeronautics, mechanical, electrical. The scope of practice ranges from routine sick call, to deployment medical readiness, to fitness determinations, to medical policy promulgation, to scholarly activity, and to research, development and acquisition.

At the end of the day, an aerospace medicine physician is a board certified specialist and serves as a subject matter expert who applies medical principles in extreme environments, such as air and space (mountain and undersea to name a couple more). In the medical community, he is a professional just as the FA40 is a professional in the space community. Recognizing the RAMs medical professional status, the Army Space Professional Development Office considered the aerospace medicine specialist a Space Enabler (3Y) in the Space Cadre Community.

Space Missions Flight Surgeons and RAMs Already Support

Army flight surgeons and RAMs already support, directly or indirectly, the space mission through efforts such as routine aviation medicine sick call at the Kwajalein Atoll Reagan Test Center, emergency medical response for Shuttle launch and recovery operations (Department of Defense Manned Spaceflight office), medical standards for UAV operators (who use space systems to conduct their mission), and human performance research in extreme environments (such as high altitude operations) or pushing the physiologic envelope to gain a combat edge.

Army flight surgeons are integral to aviation units that support the Intelligence community, who also rely on space systems. Because of their disaster medicine training, RAMs are used as Joint Task Force Surgeons for Defense Support of Civil Authorities, in support of U.S. Northern Command's mission. The Command is heavily reliant on Space for situational awareness as well as command, control and communications.

Space Cadre: A Tale of Two Communities

USASMDC/ARSTRAT's lineage and organizational structure reflect the evolution of the Army's response to the growing missile threat, as well as the Army and Joint warfighter's increasing reliance on space. Because of the Commission to Assess U.S. National Security Space Management and Organization, Department of Defense 1501.2 Executive Agent for Space, and Presidential Directive 49, the services were to grow and maintain a cadre of space-smart people.

While SMDC/ARSTRAT was building their Space Cadre, the Army aerospace medical community was defining and refining career tracks for its cadre, with the goal of retaining and utilizing senior aerospace medicine specialists. The Army aerospace medicine specialist community has longed to associate with the Army Space community, but it wasn't until the Space Cadre Data Call for 3Y Space Enablers that the opportunity presented. Three things made it happen. 1) Identification of aerospace medicine specialist (vs basic level flight surgeons) as USASMDC 3Y ASI. 2) Award of the designation to the entire Army Aerospace Medicine Specialist community. 3) USASMDC/ARSTRAT's official recognition of four Accreditation Council for Graduate Medical Education aerospace medicine residencies as the medical equivalent of Space training, producing 3Y Additional Skill Identifier level knowledge.

Reviewing the curriculum in depth, however, Army Space Professional Development Office did not consider it as "space operations" training. The purpose of space operations training is to indoctrinate the service member into the space operator's culture (akin to the primary flight training indoctrinates the flight surgeon student into the aviation environment and culture). In keeping with the Space Cadre professional development intent, Army Space Professional Development Office requested FWC DCD coordinate with the Naval Aerospace Medical Institute for the Army Space Cadre Basic Course. FWC DCD and the Naval Aerospace Medical Institute met in early November 2009 and coordinated the course to be taught at the Institute Jan. 25-29, 2010. As a result, FWC DCD will provide continued Space Cadre MTTs as a regular and routine part of the Navy Aerospace Medicine Residency Training Program.

Connecting the Dots

Having an appreciation for the flight surgeon's history in aeronautics and astronautics and given USASMDC's 3Y Additional Skill Identifier award and Space Cadre basic training to the RAMs, the question still remains. What role, then, does the RAM have in the USASMDC/ARSTRAT?

In its early history, USASMDC/ARSTRAT was a small organization, element, center, or institute that was systems-based and didn't need endogenous medical support. That support usually came from a medical treatment facility that had an "area medical support mission," within which the pre-USASMDC organization fell. Since the 1985 Army Space Initiative Study, Army Space has matured into the organization it currently is. This organization has operational, research, and combat development all within its sphere of direct influence.

Operationally, the standing up of the 1st Space Brigade dictated Combat Service Support requirements. Medical Command doctrine is that organizations from battalion through corps are authorized a surgeon. The surgeon is responsible for coordinating health assets and operations within the command. Although based out of Colorado Springs, Colo., the unit is fractionated and deployed as teams. Command, control and communications for health implementation become a challenge.

From the research perspective, USASMDC Research, Development and Acquisition has medical concerns related to health hazards exposure to the development and employment of space systems. In developing space systems, USASMDC RDA must consider manpower and personal integration issues. Manpower and personal integration mission is to optimize total system performance, reduce life cycle costs and minimize risk of soldier loss or injury by ensuring a systematic consideration of the impact of materiel design on soldiers throughout the system development process.

Aerospace medicine specialists, who track through U.S. Army Aeromedical Research Laboratory, are uniquely trained

in the Research, Development and Acquisition culture, specifically military operational medicine. Military operational medicine research and development is focused on human performance and protection, some of which are collaborations with NASA. It is the aerospace medicine specialist's experience with the RDA life cycle management and milestone principles that allow him to be the human advocate regarding the health hazard analysis part of Manpower and Personnel Integration issues affecting space systems development and employment.

To date, there is no medical corps officer in the entire command to address the broad scope of medically related issues. Recognizing the requirement, USASMDC G1 sent a representative to the October 2009 Medical Command Grade Allocation Conference to present its case and to request priority in filling the requirement. Although the last presenter of the day, USASMDC G1 captivated the board and won resounding support. As a result, USASMDC/ARSTRAT is currently scrubbing its Table of Distribution and Allowances for a command surgeon billet for a 2012 fill.

Conclusion

That command surgeon must have a broad skill set and experience which should include knowledge of the space environment. USASMDC/ARSTRAT would benefit by having a command surgeon, who is operationally indoctrinated and attuned to RDA principles. The aerospace medicine specialist, then, is uniquely poised to fill the position and address all the medical requirements appropriate for a command with operational troops and an RDA function.

To be sure, only a few aerospace medicine specialists would track through a Space Cadre Career. Receiving aerospace medicine and space operations training, as well as 3Y Additional Skill Identifier award, early in the RAM's career enables the select few to fill a handful of medically related 3Y coded billets, of which the duties progress to higher responsibility. An example of an aerospace medicine specialist Space Cadre Career may look like: RAM/Aviation Brigade Surgeon (not 3Y unless 1st Space Brigade becomes a requirement)/U.S. Army Aeromedical Research Laboratory Branch Chief/ NASA Liaison Officer/U.S. Army Aeromedical Research Laboratory Division Director/ USASMDC command surgeon.

In this way, USASMDC would not only get a surgeon with a wide scope of knowledge, skills, and experience, it would also be getting a surgeon who is a career Space Enabler. Hence, the aerospace medicine specialist is, indeed, an active and contributing member of the Space Cadre. The aerospace medicine specialist would be a force multiplier and enable USASMDC/ARSTRAT to more efficiently and effectively accomplish its global mission.

BIO

COL John P. Albano

John is a Space Cadre member, an Army flight surgeon, and a Board Certified Aerospace Medicine Specialist. He has a Medical Doctorate from the University Of South Dakota School Of Medicine, a Masters in Public Health from the University Of Texas School Of Public Health at San Antonio, and Aerospace Medicine Residency Training at Brooks Air Force Base. Albano has over 22 years of combined clinical, research, and academic experience in U.S. Army aerospace medicine.

His clinical experience includes general medical practice, air medical evacuation of critical patients, occupational medicine in the aviation environment, aeromedical fitness determinations, and helicopter accident investigations. His research management experience includes air crew protection, aeromedical device testing, Army systems health hazard analyses, aeromedical policy promulgation, and advanced technology applications in medicine. Following his medical staff duty as the Regional Aviation Medicine Consultant in the Republic of Korea, he was the Chief of the Aeromedical Education Branch of the U.S. Army School of Aviation Medicine at Fort Rucker, Ala. Currently, he is the Army Associate Director for the Navy Aerospace Medicine Residency at Pensacola, Fla. Albano is responsible to train Army RAMs for operational duties primarily as command surgeons to aviation units starting at battalion as well as the Army School of Aviation Medicine, Army Aeromedical Research Laboratory, Army Aeromedical Activity, Army Safety Center, and Lyster Army Troop Health Clinic.

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.

(719) 554-0452;
michael.connolly@smdc-cs.army.mil

New Air Force Space Badge Criteria Approved

At the request of LTG Kevin T. Campbell, Gen. C. Robert Kehler, Commander Air Force Space Command approved revised criteria for awarding the Air Force Space Badge to Soldiers. These changes, that affect the award of the Basic Badge only, include:

1. Attendance at the residential Army Space Cadre Basic Course (currently, 40 hours of Army centric space training) or completion of the on-line Advanced Space Operations School "Introduction to Space" course; and one of the following billet qualification courses. This education/training along with 12 months experience in a Space Cadre billet and organizational certification will qualify a Soldier for the basic badge.

   - Joint Tactical Ground Station – Initial Qualification Training (residential, 7 weeks)
   - Army Space Support Team – Certification Training Program (residential, 7 weeks)
   - Commercial Imagery Team – Certification Training Program (residential, 11 weeks)
   - Space Situational Awareness – Certified Training Program (residential, 6 weeks)
   - Ground-based Midcourse Defense (GMD) Operator Course (residential, 7 1/2 weeks)
   - Missile Defense Operator Course with GMD add-on (residential, 7 weeks)

2. Attendance at a residential 80 hour Army Space Cadre Basic Course (under development) and 12 months experience in a Space Cadre billet.

3. Functional Area 40, Space Operations Officers, as the Army's only Space Professionals, may be awarded the Basic Air Force Space Badge upon successful completion of the Space Operations Officer Qualification Course without regard to completing 12 months in a Space Cadre coded billet.

Army Space Personnel Development Office policies will be updated to reflect these changes that immediately went into effect.

For additional information, contact
Bob Kyniston at (719) 554-0459 or
robert.kyniston@smdc-cs.army.mil

Civilian Space Professional

Space Professionals: (military and civilian) career space specialists, whose principal duties include planning, developing, resourcing, acquiring, integrating, or operating space forces, concepts, applications, or capabilities in accordance with Department of Defense Directive 3100.1 and JP 3-14. (Currently FA40 only)

In January 2006, the Vice Chief of Staff of the Army approved the definition of space professional and space enabler as agreed to through the Army Space Cadre Force Management Analysis (FORMAL). Since then, the Army Space Personnel Development Office has briefed the definition with the caveat that, "currently only FA40s are considered space professionals." However, now is the time to recognize the education, training and significant contributions our civilian workforce make toward the accomplishment of the space mission. This recognition is highly deserved and places our civilians on equal footing with FA40s in competing for education and training opportunities.

As mandated by Congressional requirements, the Army Space Cadre Office tracks and reports on the status and health of the Army's space cadre members. Because of the multitude of specific data requested by Congress, we created a Space Tracking System which is both top fed from Army databases and populated with input from cadre members. The data provided by the individual cadre member on a Civilian Space Cadre Questionnaire, contains information about their civilian education, military/professional training and space-related experience. Based on that information, the Army Space Cadre Office identified almost 200 individuals (the majority working for U.S. Army Space and Missile Defense Command/Army Forces Strategic Command) who meet the requirements for designation as a Space Professional.

Using criteria similar to that used in awarding the Air Force Space Badge to Soldiers, the Army Space Cadre Office established three levels for Army Civilian Space Professionals. Each level has defined education and experience requirements which are listed in the chart on the adjacent page.

Individuals who were awarded the Air Force Space Badge as a member of the Armed Forces may be grandfathered into the Civilian Space Professional level that corresponds with their badge level.

To ensure civilians have the opportunity to attend professional development education, the Army Space Personnel Development Office instituted a policy to include Department of the Army Civilians, who have been nominated by their supervisor, on the Space 200 and 300 Order of Merit Lists. These lists are managed by established and published procedures and provide every individual the opportunity to fill one of the Army's allotted training slots. If you are interested in attending either Space 200 or 300 have your supervisor contact Jerry Pepin at (719) 554-0457. Individuals may also have the opportunity to fill short notice training seats.

For individuals who do not know their status or who have not completed a Civilian Space Cadre Questionnaire, please contact Jim Schlichting at (719) 554-0456 or Jim.Schlichting@us.army.mil.

In order to fully realize how sharp our edge can be and the capability that exists within the Army's Space Community, now is the time to acknowledge our civilians as the Space Professionals they truly are!

...Now is the Time

Space Cadre Certification Requirements

→	Required	Officer	Enlisted	Civilians*
LEVEL 1	1 yr space experience unless a position certification program is completed	• SOOQC • Space Fundamentals or equivalent • Army Space Cadre Basic Course (80 Hours) • Army Command and General Staff College Space Electives	• Space Fundamentals or equivalent • Space Introduction Course (40 Hours) plus Space Position certification training (see Paragraph 3.3) • Army Space Cadre Basic Course (80 Hours) • 1C Course • A few other grandfathered courses	• Army Space Cadre Basic Course (80 Hours) • Any other qualifying methods for the military • Degree in a space-related technical field • Considered a Level 1 "Space Professional"
LEVEL 2	4 yrs space experience	• Space 200 • SOOQC	• Space 200 • 1C Course	• Space 200 • Considered a Level 2 "Space Professional"
LEVEL 3	7 yrs space experience	• Space 300	• Space 300	• Space 300 • Considered a Level 3 "Space Professional"

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.

(719) 554-4545;
larry.mize@smdc-cs.army.mil

Army Space Cadre Basic Course, Huntsville, Ala., 5-9 April 2010

Army Space Cadre Basic Course, JTAGS Detachment, Germany, Feb. 21-24, 2010

Army Space Cadre Basic Course - Frequently Asked Questions

By Lenny Gehrke, Course Manager

What is the Army Space Cadre Basic Course? Who is if for? Who provides the training? How can I get the training? The Army Space Cadre Basic Course is a 40-hour Army-centric space basics course for Soldiers, Civilian employees, and Contractors who need a foundational understanding of the basics of space technology, systems, mission areas, organizations and operations. This course is unique in that it's groomed to the customers. The course is set up with core space classes and electives selected by the customers, much like college courses. For example, if students conduct a space surveillance mission, space surveillance lessons may not be covered in the course, but can be replaced by other lessons pertinent to the students' mission. Schedules are coordinated between the course director and the point of contact or lead requesting the course.

The Directorate of Combat Development conducts the course both locally in Colorado Springs and remotely at locations all around the world. Just recently this course was provided to all the Joint Tactical Ground Station detachments (Central Command, European Command, and Pacific Command) at the request of the 1st Space Battalion Commander. Not only do students learn new information regarding space, but they better understand their mission and how it relates to the big picture of space.

Requesting the Army Space Cadre Basic Course training is easy, just ask. So far no request for training has been denied. The Directorate of Combat Development conducts course training multiple times annually and at different locations. The course is conducted in Colorado Springs and Huntsville at least twice a year and is coordinated and advertised well in advance. Under development is an 80-hour Army Space Cadre Basic Course that will be available for customers that require a more detailed Army space basics course. It is being designed to support those Soldiers and Civilians that do not have the opportunity to attend a variety of functional area, military occupational specialty, and additional skill identified dedicated courses (i.e. Functional Area 40, Joint Tactical Ground Station, AN/TPY-2 Sensor Manager, and Ground-based Midcourse Defense Operator).

Following the Army Space Cadre Basic Course, students receive all course lesson materials for future reference along with the Army Space Professional Reference Guide, a document developed for the Army Space Professionals. In addition to the Army Space Cadre Basic Course training, the staff provides Training Assistant Visits and Staff Assistant Visits to staff elements to help them understand how space capabilities can improve planning and mission execution.

Call! We deliver!

lenard.gehrke@smdc-cs.army.mil 719 554-4527

TRAINING TRAINING TRAINING TRAINING

FWC DCD Lessons Learned Program

By Bill Coffey, Tactical Space Courses Instructor

Throughout the current war, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command (USASMDC/ARSTRAT) has developed means and methods to capture, analyze and disseminate space and space-related observations, insights, lessons and recommendations. Our efforts are grounded in Army Regulation 11-33, the "Army Lessons Learned Program" and tailored to the unique and ever-changing support requirements of Army and Joint space personnel, teams and elements. The one constant in our command's ability to continually learn the new and innovative space Tactics, Techniques and Procedures has been the feedback provided from our deployed and redeployed Army and Joint space personnel. As noted by the former U.S. Training and Doctrine Commander, GEN William Wallace, "During peacetime, the institutional Army drives change. During war, the operating force drives change through gained combat experience." As a direct result of the length of the current war and the need to continually spiral our space capabilities, USASMDC/ARSTRAT Future Warfare Center Directorate of Combat Development has developed and implemented a formal Lessons Learned process.

THE FWC DCD LESSONS LEARNED PROGRAM

The Lessons Learned program, establishes deliberate, systematic, and continuous processes for managing, collecting, analyzing, processing, storing, and disseminating space and space-related observations, insights, lessons learned and recommendations generated from U.S. Central Command deployed and redeployed Army and Joint space forces. The end results of this Lessons Learned Standard Operating Procedures is to provide information and knowledge to improve space operations through doctrine, organization, training, materiel, leadership

and education, personnel, and facilities decisions and actions. The primary focus of this Lessons Learned Standard Operating Procedure is on combat operations within the Central Command Area of Responsibility.

STANDARD OPERATING PROCEDURE SCOPE

Although focused primarily on operations within the U.S. Central Command Area of Operations, this Standard Operating Procedure also addresses processes for the collection, analysis and dissemination of observations, insights, lessons and recommendations from strategic space organizations, exercises, experiments, wargames and meetings such as symposiums, conferences, warfighter forums and training events.

USASMDC/ARSTRAT ROLES AND RESPONSIBILITIES

Multiple USASMDC/ARSTRAT units and organizations play a proactive role in using lessons learned observations and information in their specific processes, procedures, and products. The following supporting tasks are satisfied by our subordinate units and organizations.

DIRECTORATE OF COMBAT DEVELOPMENTS

Provides USASMDC/ARSTRAT Lessons Learned Program Manager and serves as the overall management authority for this Standard Operating Procedure. Also, DCD provides representation at each debrief to serve as Subject Matter Experts for their area and action lessons learned for their areas.

ARMY SPACE PROFESSIONAL DEVELOPMENT OFFICE

As the designated command POC for Army Space Knowledge Management, identifies, develops, advocates and manages select collaboration tools for the Army Space Cadre.

USASMDC/ARSTRAT G3 TRAINING AND EXERCISE

Serves as the command lead for integrating all OIL into Joint Lessons Learned Information System, Joint Training and Information System and Web-based Issue Resolution Database. Additionally, the Training and Exercises branch serves as the command lead for capturing observations, insights and lessons during exercises which involve Army and/or Joint space personnel/teams/elements, serving as lead for coordinating with the Joint and Coalition Forces Command J7/Joint Warfighting Center to develop space training objectives, space and space-related Master Scenario Events List, participating and supporting space personnel/teams/elements and capturing space, Special Technical Operations and Alternate or Compensatory Control Measures related observations, insights and lessons during each of these exercises.

SPACE AND MISSILE DEFENSE BATTLE LABORATORY

Serves as the USASMDC/ARSTRAT lead for capturing space and space-related equipment observations, insights and lessons for systems they have fielded. Also, serves as the manager of the SMDC Knowledge Management System where select observations, insights, lessons, recommendations and After Action Reports are archived. The SMDC Knowledge Management System is prototypical and currently has received a Certificate of Networthiness from Network Command. Initial access is through the Defense Research and Experimentation Network and NIPRNet (Space and Missile Defense Battle Lab is working with Army Forces Strategic Commands G6/CIO). SIPRNet accreditation has begun. SMDC Knowledge Management System will allow users to access knowledge (information with content) from any location that has internet, NIPRNet, and ultimately SIPRNet connectivity – SMDC Knowledge Management System is Internet Protocol based) and easily accessed via browser.

SUMMARY

This Lessons Learned program attempts to establish and maintain a culture within USASMDC/ARSTRAT in which every Soldier, government Civilian and supporting Contractor sees himself or herself as a collector of positive (sustain) and negative (improve or change) information with a responsibility to submit this information through his or her chain of command. Success in this culture is defined as the continuous collection and submission of observations, insights and lessons from every unit level; from the individual Soldier to the most senior leaders. The objective end results is to sustain, enhance, and increase our command's ability to provide timely and effective space force enhancement and space control to current and future land component forces and operations.

■ The 29th Infantry Division (Light) is an Army National Guard unit with elements in Virginia, Maryland, Massachusetts, New Jersey and Connecticut. The "Blue and Gray" Division is the only light infantry division in the entire reserve component.

"You Call, We Haul" – Training Assistance Visits

By Lenny Gehrke and Bill Coffey

When requested, the USASMDC/ARSTRAT Directorate of Combat Development's (DCD) Training Branch deploys tailorable space operations training teams to support unit training and leadership education requirements. Every Training Assistance Visit is customized to each unit's needs, considers deployment schedules, and integrates wartime requirements (current and emerging space operations and "Technical Operations" - Tactics, Techniques and Procedures) and supporting Operations Plans.

(Note: "Technical Operations" is a non-doctrinal term, but is commonly used today throughout Army Division and Corps headquarters. It largely defines the collective management, planning, integration and coordination of three major components: Space, Special Technical Operations and Alternate or Compensatory Control Measures. Technical Operations is usually organized within the C/G3 staff section, but at times within the C/G7. Additionally, Technical Operations includes any combination of other specialty staff skill sets and personnel. A division level Space Support Element, organized as Technical Operations, on average, currently include about 15 personnel (any combination of officers, enlisted, government employees, U.S. contractors and local nationals).

Each Training Assistance Visit is a tailored briefing, or multiple-day course, which does not conform to standardized courses such as the Army Space Cadre Basic Course or the Tactical Space Operations Course. Typically requested by Division and Corps level Space Support Elements), these Training Assistance Visits have for the past several years focused primarily on Central Command theater pre-deployment training requirements. Previous Training Assistance Visits have also been deployed to support headquarters from other Geographical Combatant Commands, to include Northern Command and Pacific Command.

During one recent example, in March 2010 the Training Branch deployed a Training team to the 29th Infantry Division (Virginia Army National Guard)

■ The 36th Infantry Division - also known as the Fighting 36th, the Panther Division, or the Texas Division - is a modular division of the United States Army National Guard. It was activated for service in World War II on November 25, 1940, and was sent overseas in April 1943.

■ The 2nd Infantry Division, as of 2009, was one of the most forward deployed, lethal and combat ready division in the US Army. The 2nd Infantry Division's mission was to deter war.

in support of their training preparations for an upcoming Operation Iraqi Freedom deployment (after this Training Assistance Visit, the 29th Infantry Division's deployment order was unexpectedly cancelled). This Training Assistance Visit team included a recently redeployed Space Support Element Chief as the Subject Matter Expert and detailed for the commanding general and his staff the concept, functions and enabling skill sets associated with Technical Operations. This Training Assistance Visit fully considered and incorporated how past and currently deployed Division and Corps commanders in the Central Command Theater have been utilizing their organic Space Support Elements. As part of the G3's Technical Operations team, each currently lead by Space Support Element Chiefs in Central Command, this briefing covered the collective staffing, training and materiel requirements for the operational integration of Space Force Enhancement, Space Control, Special Technical Operations, Alternative Compensatory Control Measures and other enabling skill sets and functions which include, but is not limited to, electronic warfare, information operations, information engagement, cyberspace operations and civil military operations. Adhering to the concept that doctrine is the "capture of best practices," the Training Assistance Visit briefing teams fully embrace the realities, and associated Tactics, Techniques and Procedures, of how our Space Support Elements and Army Space Support Teams are currently tasked and employed throughout the Central Command Area of Responsibility.

Another recent example was a Training Assistance Visit to the headquarters of the 36th Infantry Division (Texas Army National Guard) in April 2010. This visit, requested by their Space Support Element, also provided a two hour briefing to the Commanding General and about 50 of his staff Soldiers on Operation Iraqi Freedom Technical Operations requirements. In a note to the Director of USASMDC/ARSTRAT's DCD, the 36th Infantry Division Chief of Staff noted, "I am writing to tell you how thoroughly we enjoyed the Staff Assistance on 9 April. [They] provided our CG and Staff an excellent overview of Army Space Operations and an explanation of the value added to our division operations in Iraq. They spent two days with our Staff, meeting with G2, G3, G6, G7, FSCOORD and Space Support Element. We all learned from these Subject Matter Experts and our command is better prepared for our deployment to Iraq. Thank you for sending [this team] to conduct this Staff Assistance Visit."

Most recently, the Training Branch deployed a Training Assistance Visit team to support training requirements of the 2nd Infantry Division headquarters and brigade level Army units (2nd Heavy-Brigade Combat Team, 2nd Combat Aviation Brigade and 210th Fires Brigade) in South Korea. Prior to this trip, the Training Assistance Visit briefing team developed customized presentations on space support to several real-world Operational Plans. Collectively, these briefings focused on real-world requirements for Major Combat Operations, while most of the rest of our Army is currently consumed with training for Counter-Insurgency and stability operations. The Training Assistance Visit, conducted over a five-day period, generated much discussion and plans to further leverage additional space capabilities and effects in support of their training events, garrison operations and war plans.

The USASMDC/ARSTRAT Training Branch remains fully available to support unit training and leadership education requirements using our pool of space trainers as well as recently redeployed Subject Matter Experts from throughout our command. Each future Training Assistance Visit will customize training and educational materials to support unit needs. We remain as a worldwide deployable and ready team of trainers to support training and educational needs. You call, we haul.

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.

(703) 325-0748
DSN 221-0748;
edwardg.anderson@smdc-cs.army.mil

Career Corner

It's a busy summer on the assignment officer desk. Human Resources Command started its Base Realignment and Closure move to Fort Knox, Ky., in June. The mission is still being executed, but there's some latency in the system due to transitions and new personnel training. There's also change on the FA40 desk. MAJ Glen Hees is taking over the FA40 Assignment Officer desk at Fort Knox. We'll start transition mid August 2010 and will be complete by the end of the month. New Fort Knox contact information will be posted to the Human Resources Command FA40 Space Operations page when available.

In March 2010 the Human Resources Command FA40 Space Operations Web page completed its transition to the new Web server. Unfortunately, the old Web page is still operational. If you saved the link to your favorites before March 2010, you will need to change it to the new link. The easiest way to get to the new Web page is to go to www.hrc.army.mil Go to the Career link near the top of the page.

The goal of the new Human Resources Command FA40 Web page is to place as much information into your hands as possible. This is primarily done in the Related Links and Document section. Most of these topics are self explanatory. One new item is the monthly FA40 Personnel Readiness report. This report is published in the middle of the month and gives the current status of the career field. Finally, to aid in finding changes on the Web page I will add a comment on the Assignment Officer Notes section.

Most of the Fiscal Year 2010 boards have recessed. I'm still seeing some of the same trends from previous boards. Here are a few issues:

PULHES –The annual Periodic Health Assessments has replaced the 5-year physical requirement. Periodic Health Assessments are conducted annually; therefore your PULHES on your Officer Record Brief (ORB) should be less than a year old. Your PULHES is updated in MEDPROS then MEDPROS updates TOPMIS (i.e. your ORB). This system update takes time and should be worked early.

eMILPO Tour Data –This is a unit level entry. I can't update this field. When you return from a deployment your PSB needs to update Dwell Start and type of tour (i.e. CBT, OPN, or RES).

MILPER Msg 10-078 – has announced new campaign dates for the Iraq Campaign Medal. Use this message to determine the number of bronze service stars authorized on your Iraq Campaign Medal.

Upcoming Boards

(DETAILS ON HRC FA40 WEB PAGE):
www.hrc.army.mil

Advanced Civil Schooling/Training With Industry Selection Board

August 2010

1st Space Battalion Command Selection Board

August 24, 2010

Fiscal Year 2011 Major Board (Year Group 02/03)

October 27, 2010

Flipside

USASMDC/ARSTRAT FEATURES

Immeasurable Good Out of Unspeakable Evil
By John W. Davis, G1

4F

Expedition 23 & 24
By Giselle Bodin, USASMDC/ARSTRAT & NASA

6F

LEMV Agreement Signed
By John Cummings, USASMDC/ARSTRAT

8F

Honoring Lives of Service
By Sharon L. Hartman, USASMDC/ARSTRAT

10F

Concept Analysis Laboratory Complete
By John Cummings, USASMDC/ARSTRAT

12F

TOP NCO, SOLDIER SELECTED

to represent USASMDC/ARSTRAT at DA Best Warrior Competition

CSM Ralph Borja, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, returns SPC Matthew R. McLeod's dog tags after checking to see if they included the Army Values during the NCO/Soldier of the Year board June 7 at Peterson Air Force Base, Colo. *Photo by Carrie E. David Ford, USASMDC/ARSTRAT*

By Dottie White, USASMDC/ARSTRAT

SPC Matthew R. McLeod, a Freemont, Calif., native, works hard to complete as many push-ups as he can in two minutes for the Army Physical Fitness Test at the competition. *Photo by Dottie White, USASMDC/ARSTRAT*

PETERSON AIR FORCE BASE, Colo. - U.S. Army Space and Missile Defense Command/Army Forces Strategic Command held the Noncommissioned Officer and Soldier of the Year competition June 7-11 on Peterson Air Force Base, Colo., and Fort Carson, Colo.

After the weeklong competition, SSG James Harris was selected as the 2010 USASMDC/ARSTRAT Noncommissioned Officer of the Year, and SPC Matthew R. McLeod was selected as the 2010 USASMDC/ARSTRAT Soldier of the Year.

Harris, who is stationed at Delta Detachment, 1st Space Company, Misawa Air Base, Japan, represented the Pacific Region, and McLeod, who is with Delta Company, 53rd Signal Battalion, Camp Roberts, Calif., represented the Western Region.

The competition was comprised of an administrative board, a written exam, a strenuous Situational Awareness Training Exercise, an Army Physical Fitness Test, day and night urban orienteering, and M-4 weapons qualification.

The other competitors were Western Region NCO of the Year - SSG Jeremy Cutshall, 1st Space Battalion, 2nd Space Company (first runner up); European Region NCO of the Year - SGT Melinda Saltzmann, Alpha Detachment, 1st Space Company; Eastern Region NCO of the Year - SGT Andrew Knife, Bravo Company, 53rd Signal Battalion; Pacific Region Soldier of the Year - SPC Daniel L. Flores, Delta Detachment, 1st Space Company, Misawa Air Base, Japan (first runner up); and European Region Soldier of the Year - SPC Samuel A. Coker, Alpha Detachment, 1st Space Company.

Harris and McLeod will represent USASMDC/ARSTRAT Oct. 17-22 at the 2010 Department of the Army Best Warrior Competition at Fort Lee, Va.

SSG James Harris stands at parade rest while following a series of commands from the Noncommissioned Officer and Soldier of the Year board president, CSM Ralph Borja, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, while Harris' sponsor, SFC Mario Russo, takes notes. *Photo by Carrie E. David Ford, USASMDC/ARSTRAT*

SSG James Harris checks his accuracy during the marksmanship portion of the competition. *Photo by Dottie White, USASMDC/ARSTRAT*

SSG James Harris checks his map as he starts the land navigation portion of the competition *Photo by Dottie White, USASMDC/ARSTRAT*

SPC Matthew R. McLeod zeros his weapon during the marksmanship portion competition. *Photo by Carrie E. David Ford, USASMDC/ARSTRAT*

After a weeklong competition, the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command 2010 Noncommissioned Officer and Soldier of the year were announced during a ceremony, June 11. From left to right, USASMDC/ARSTRAT CSM Ralph C. Borja, 2010 USASMDC/ARSTRAT Noncommissioned Officer of the Year - SSG James Harris, 2010 USASMDC/ARSTRAT Soldier of the Year - SPC Matthew R. McLeod, and USASMDC/ARSTRAT Deputy Commanding General, BG Kurt S. Story. *Photo by Dottie White, USASMDC/ARSTRAT*

IMMEASURABLE GOOD OUT OF UNSPEAKABLE EVIL

By John W. Davis

Huge tunnels were bore into the Harz Mountains at a place called Dora-mittelbau, Germany. They were to protect the Nazis' V-2 rocket plant from Allied bombers. The tunnels were also the site of mass murder. To build the rockets, most estimates conclude 20,000 slaves from across Europe were tortured, beaten, and worked to death there. Strangely, some sixty years after the last SS (Schutzstaffel) guard ran away from the advancing U.S. Army, Dora's legacy comes to directly affect Huntsville, Ala.

A seminar at the University of Alabama, Huntsville, is entitled "Dora and the V-2, Slave Labor and the Space Age." It notes an inexplicable reality. Huntsville, the Rocket City, earned its title due to Project Paperclip, which brought captured German rocket scientists to America. They developed our rocket program which resulted in the magnificent trip to the moon and back. For this grand accomplishment humanity will honor them forever.

And yet, is this fair? Is it fair to commemorate men who knowingly used slave labor to produce their first rockets, then brought that science to America? Otherwise stated, is it fair to forget those who were beaten to death, often with sticks and boots like rabid animals, in the production of those flying Nazi bombs?

> "Near, but difficult to grasp, the God. But where there is danger, the saving powers also rise."
>
> J.C. Friedrich Holderlin

Group of 104 German rocket scientists in 1946, including Wernher von Braun, Ludwig Roth and Arthur Rudolph. The group had been subdivided into two sections: a smaller one at White Sands Proving Grounds for test launches and the larger at Fort Bliss for research. Many had worked to develop the V-2 Rocket at Peenemünde Germany and came to the U.S. after WWII, subsequently working on various rockets including the Explorer 1 Space rocket and the Saturn at NASA. *Photo courtesy Wikipedia*

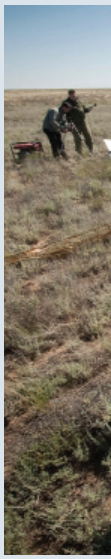
Photographs at the Huntsville University Library show dramatic scenes. Some were captured on scraps of paper by those who risked their lives to do so. They reveal beastliness, brutal, inhuman conditions, and macabre death scenes. One scene freezes forever the hanging of several prisoners, their mouths locked shut by sticks and cords. These devices were to prevent them calling out to the assembled slaves, arrayed to see the sight, and tremble.

Slavery. We in this country fought a civil war to end that stain. One speaker at the conference said no memorial should only mourn the dead. No, a democracy's strength is how it can objectively face its past, the better to learn from it. How can we do less in our city? If, due to the horrible death of so many others, our future as the center for space travel began, surely we can acknowledge that fact.

Our Space and Rocket Museum should have a permanent display, perhaps using some of those photos or items on display at UAH. Our city's Big Spring Park, or Von Braun Center, could memorialize those murdered Europeans. UAH could commemorate them, the better to remind young engineers of the future that life's choices have consequences. Science affects the lives of people, not just equipment. We should, after all, have an ethical awareness of cause and effect. This awareness should inform our actions. We should concretely recognize that while we did not cause the murders, indeed we were the liberators of the slaves, we must do more.

We can honor those murdered by Hitler. Their slave labor led not only to the development of Hitler's weapons of vengeance, but gave us the basis of those wonderful ships which took us to the moon. The world needs to know that these dead too, were as one professor observed, "Rocket Men." Also, as so poignantly observed by one panelist, such recognition would wring immeasurable good out of unspeakable evil. The great German poet, J.C. Friedrich Holderlin said as much when he wrote "Near, but difficult to grasp, the God. But where there is danger, the saving powers also rise." The thousands murdered, those denied every single dignity in the great danger that was Dora, might finally receive an earthly dignity. We of Huntsville have only to recognize them in this, our Rocket City.

NASA astronaut T.J. Creamer, Expedition 23 flight engineer, sits in a chair outside the Soyuz TMA-17 spacecraft just minutes after he and two crewmates landed in their capsule near the town of Zhezkazgan, Kazakhstan, June 2, 2010. Creamer, along with Russian cosmonaut Oleg Kotov, commander, and Japan Aerospace Exploration Agency astronaut Soichi Noguchi, flight engineer, are returning from six months onboard the International Space Station where they served as members of the Expedition 22 and 23 crews.
Photos by Bill Ingalls, NASA



Three Expedition 23 crew members have just been seated in chairs near their Soyuz TMA-17 spacecraft just minutes after they landed near the town of Zhezkazgan, Kazakhstan, on June 2, 2010. In the chairs, from the left, are Japan Aerospace Exploration Agency astronaut Soichi Noguchi, Russian cosmonaut Oleg Kotov and NASA astronaut T.J. Creamer. The three are returning from six months onboard the International Space Station where they served as members of the Expedition 22 and 23 crews. The crowd includes NASA astronaut managers and other astronauts, along with other officials.

Army Astronaut Completes Stay at ISS with EXPEDITION 23

Story by Giselle Bodin, USASMDC/ARSTRAT

NASA Astronaut flight engineer and Army COL T.J. Creamer landed along with Expedition 23 Commander Oleg Kotov and flight engineer Soichi Noguchi in Kazakhstan, June 1, wrapping up a five-and-a-half-month stay aboard the International Space Station.

The spacecraft undocked at 8:04 p.m. EDT from the aft port on the station's Zvezda module. The crew landed at 11:25 p.m., east of Dzhezkazgan, Kazakhstan.

Russian recovery teams were on hand to help the crew exit the Soyuz vehicle and adjust to gravity after 163 days in space. Creamer will return to Houston on Wednesday.

The trio launched aboard the Soyuz TMA-17 spacecraft from the Baikonur Cosmodrome in Kazakhstan on Dec. 21, 2009. As members of the Expedition 22 and 23 crews, they spent 161 days on the station.

They supported three space shuttle missions that delivered the U.S. Tranquility module and its cupola; put the finishing touches on U.S. laboratory research facilities; and attached the Russian Rassvet laboratory and storage module.

Research conducted during Expedition 23 took advantage of the microgravity conditions for a wide variety of fields, including human life sciences, biological science, human physiology, physical and materials science and Earth and space science.

The station is currently occupied by the Expedition 24 commander and two flight engineers, who arrived April 4. A new trio of Expedition 24 flight engineers launched from the Baikonur Cosmodrome on June 15. This trio includes Army astronaut COL Doug Wheelock.

NASA astronaut T.J. Creamer, Expedition 23 flight engineer, is carried in a chair to the medical tent just minutes after he and fellow crew members Russian cosmonaut Oleg Kotov and Japanese astronaut Soichi Noguchi landed in their Soyuz TMA-17 capsule near the town of Zhezkazgan, Kazakhstan, on June 2, 2010. Creamer, Kotov and Noguchi are returning from six months onboard the International Space Station where they served as members of the Expedition 22 and 23 crews.

The Russian Soyuz spacecraft carrying three new Expedition 24 flight engineers bound for the International Space Station prepared for lift off earlier this week near the Baikonur Cosmodrome in Kazakhstan.

U.S. Army COL Doug Wheelock, Russian cosmonaut Fyodor Yurchikhin, and NASA Astronaut Shannon Walker prepare for their mission before Tuesday's launch of the three new Expedition 24 crew members. *Photos courtesy NASA*

Army Astronaut Launches as part of EXPEDITION 24

By NASA

The Russian Soyuz spacecraft carrying three new Expedition 24 flight engineers bound for the International Space Station lifted off at 5:35 p.m. EDT Tuesday.

As the launch of the Soyuz TMA-19 lit up the pre-dawn skies around the Baikonur Cosmodrome in Kazakhstan, NASA astronauts Doug Wheelock and Shannon Walker and Russian cosmonaut Fyodor Yurchikhin began the two-day journey to catch up with the space station currently orbiting 220 statute miles above the Earth.

The station's newest flight engineers will begin a five-and-a-half month tour of duty after docking with the station's Zvezda service module at 6:25 p.m. Thursday. Fellow Expedition 24 crewmates Commander Alexander Skvortsov and Flight Engineers Mikhail Kornienko and Tracy Caldwell Dyson will welcome them aboard the orbiting complex when the hatches open around 10 p.m.

In September Wheelock, Walker and Yurchikhin will become the Expedition 25 crew when Skvortsov, Kornienko and Caldwell Dyson return home in the Soyuz TMA-18 spacecraft that brought them to the station April 4.

U.S. Army COL Wheelock, 50, is making his second trip into space. As an STS-120 mission specialist aboard space shuttle Discovery in 2007, he traveled to the station and conducted three spacewalks. Walker, 45, is a graduate of Rice University and the first native Houstonian to be named an astronaut. This is her first spaceflight. Yurchikhin, 51, is making his third trip into space and his second long-duration stay aboard the station. He flew aboard space shuttle Atlantis on the STS-112 mission to the station in October 2002. He also spent six months aboard the station in 2007 as commander of Expedition 15.

Artist conception of the Long Endurance Multi-intelligence Vehicles (LEMV). Photo artist rendering

Long Endurance Multi-Intelligence Vehicle

L.E.M.V.

AGREEMENT SIGNED

By John Cummings, USASMDC/ARSTRAT

REDSTONE ARSENAL, Ala. - On June 14, the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command signed an agreement to develop a state-of-the-art hybrid airship that will provide persistent time-on station for additional intelligence, surveillance and reconnaissance to the theater commander.

The agreement was awarded to Northrop Grumman for the Long Endurance Multi-Intelligence Vehicle (LEMV) technology demonstrator.

The base year of the agreement, for approximately $154 million and up to $517 million if all options are exercised, provides for the design, development and testing of a long-duration hybrid airship system within an 18-month time period, and then transport the asset to Afghanistan for military assessment. The agreement also includes options for procuring two additional airships.

"We are doing this to protect the soldiers on the ground," said Marty Sargent, LEMV Project Manager. "We are on a tight schedule but we want this to be successful for the Army and all services."

The football field-sized hybrid airship's design requirements include the capability to operate at 20,000 feet above mean sea level, a 2,000 mile radius of action, and a 21-day on-station availability; provide up to 16 kilowatts of electrical power for payload; be runway independent; and carry several different sensors at the same time. LEMV will be a recoverable and reusable multi-mission platform. It can be forward located to support extended geostationary operations from austere locations and capable of beyond-line-of-sight command and control.

LEMV is being awarded as an Other Transaction Agreement (OTA). OTA's for Prototype Projects are called agreements because they differ from a traditional Federal Acquisition Regulation (FAR) contract in that many of the federal laws and regulations governing procurement contracts are waived.

"We utilized the OTA to access commercial technology; while Northrop Grumman is primarily a U.S. defense contractor, High Altitude Vehicles, Ltd. (HAV), who partnered with Northrop Grumman, is not," stated Cathy Dickens, USASMDC/ARSTRAT Principle Assistant Responsible for Contracting. "The technology that we needed to reach out for in the airship business was primarily commercial," Dickens continued.

The timeline for LEMV is an 18 month schedule that includes vehicle inflation at about month 10 with first flight planned in month 12 or 13. Additional operational characterization will occur at Yuma Proving Ground, Ariz., in month 16.

Ron Dillon, contracting officer at USASMDC/ARSTRAT, signs the long endurance multi-intelligence vehicles (LEMV) agreement with Northrop Grumman. The agreement provides for the design, development and testing of a long-duration hybrid airship system within an 18-month time period, and then transport of the asset to Afghanistan for military assessment.
Photo by Michael L. Howard, USASMDC/ARSTRAT

New USASMDC/ARSTRAT CSM

CSM Larry S. Turner a native of Perth Amboy, N.J., graduated from Perth Amboy High School and entered military service in April 1978. CSM Turner completed basic training at Fort Dix, N.J. His advanced infantry and airborne training was completed at Fort Benning, Ga.

CSM Turner's assignments include 3rd Battalion, 325th Airborne Infantry Regiment, Fort Bragg, N.C.; 4th Battalion, 325th Airborne Combat Team (ABCT), Vicenza, Italy; 4th Battalion 325th Infantry Regiment Fort Bragg, N.C.; 2nd Battalion 504th Parachute Infantry Regiment Fort Bragg, N.C.; Infantry Training Brigade, Fort Benning, Ga.; 2nd Battalion 505th Parachute Infantry Regiment, Fort Bragg, N.C.; 1st Region ROTC, Atlanta, Ga. He also served as the 1st Battalion, 48th Infantry Regiment Command Sergeant Major at Fort Leonard Wood, Mo.; ROTC Brigade Sergeant Major; 82nd Division Special Troops Battalion Command Sergeant Major, Fort Bragg, N.C. Command Sergeant Major of Task Force Cincinnatus, and Bagram Airfield, Afghanistan. Command Sergeant Major of Task Force Gladius, CJTF-82, Bagram Airfield, Afghanistan. Command Sergeant Major of Combined Security Transition Command Afghanistan and NATO Training Mission Afghanistan.

CSM Turner's duty positions included: Rifleman, Team Leader, Squad Leader, Section Sergeant, Platoon Sergeant, Drill Sergeant, Drill Sergeant Instructor, First Sergeant, ROTC instructor, Battalion CSM, ROTC Brigade Sergeant Major and Brigade Task Force CSM. CSM Turner's military education includes Primary NCO Course, Basic and Advanced Infantry NCO Courses, Drill Sergeant Course, First Sergeant Course and Sergeants Major Academy and various other professional development courses.

CSM Turner's awards and decorations include Bronze Star Medal (2nd OLC), Meritorious Service Medal (5th OLC), Army Commendation Medal (4th OLC), Army Achievement Medal (1st OLC), Joint Meritorious Unit Award, Meritorious Unit Commendation, Army Good Conduct Medal (10th Award), National Defense Service Medal (2nd Award), Armed Forces Expeditionary Medal, Southwest Asia Service Medal with Bronze Service Star, Global War on Terrorism Service Medal, Humanitarian Service Medal, NCO Professional Development Ribbon with numeral 4, Army Service Ribbon, Overseas Service Ribbon, Saudi Arabia Liberation Medal, Kuwait Liberation Medal, Combat Infantry Badge (2nd Award), Expert Infantry Badge, Master Parachutist Badge with combat device and Drill Sergeant Badge.

CSM Ralph Borja enjoys the entertainment at his farewell barbecue with the troops in Colorado Springs, Colo. *Photos by Dottie White*

CSM Ralph Borja addresses the troops during his farewell barbecue in Colorado Springs, Colo.

Outgoing CSM Ralph Borja relishes his time with the Soldiers, Civilians, Contractors and Family members of USASMDC/ARSTRAT.

From left to right: CSM Timothy Czuba, CSM Cody Baker and CSM James Ross sing "God Bless the U.S.A." with vocalist and guitarist, Mike Cornett.

HONORING LIVES OF SERVICE

By Sharon L. Hartman, USASMDC/ARSTRAT PAO

PETERSON AIR FORCE BASE, Colo. Approaching rain was unable to put a damper on the spirits of U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Soldiers, Civilians and Contractors, who gathered together to celebrate the long and illustrious career of the command's senior enlisted leader, CSM Ralph Borja, at one of several farewell events with the operational element of the command. As ominous clouds hovered menacingly over the mountains, the June 9 farewell barbecue, originally scheduled for Patriot Park, was moved indoor to the Building Three training rooms where the space quickly filled to capacity.

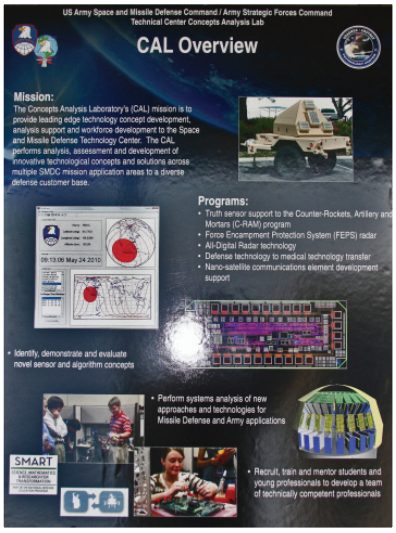
While attendees chowed down on tangy barbecue, spicy macaroni and cheese and baked beans catered by Famous Dave's Barbecue, Mike Cornett of Headquarters and Headquarters Company, 1st Space Brigade added to the festive atmosphere by playing his guitar and crooning tunes of Johnny Cash, the Beatles and more. As the afternoon went on, Borja made rounds to each of the crowded tables to spend time with and say farewell to the men and women he has mentored and inspired over his three years with the command.

After everyone had eaten their fill, and with time running short as Borja had to get back to his tasks with the Noncommissioned Officer and Soldier of the Year competition, 1st Space Brigade CSM James Ross, citing an inside joke with several sergeant majors, said he "had something in his heart he had to let out." With 53rd Signal Battalion CSM Tim Czuba and 1st Space Battalion CSM Cody Baker in tow, the three joined Cornett in a slightly off-key rendition of Lee Greenwood's "God Bless the U.S.A." As the quartet reached the chorus — "and I proudly stand up next to you" — the entire room joined in singing and scores in attendance rose to their feet turning the initial comical performance into a sign of Army strength and unity. As the song ended, Borja made his remarks thanking everyone for their dedication and support over the years.

Two days later, toward the end of the awards ceremony for the Noncommissioned Officer and Soldier of the Year competition, the command had another farewell surprise for Borja and his wife Nguyet, A touching slideshow covering their last three years with the command culminated in a tribute which brought tears to the eyes of the stoic leader and his devoted spouse, as Soldiers from the numerous command sites around the world — via audio recordings — passed on their gratitude and well wishes to the much beloved couple. The final Colorado Springs event to farewell the Borjas was a more intimate dinner with operational leaders from the command, where the slideshow tribute was presented again, as well as a special slideshow presentation from CSM Borja to Nguyet thanking her for her love and support. Following the change of responsibility and retirement ceremonies, the Borjas plan to move to Salt Lake City, Utah.

Concepts Analysis LABORATORY EX COMPLETE

By John Cummings, USASMDC/ARSTRAT



An overview poster describing the concepts analysis lab missions.

Dr. Rodney Robertson, former director of the USASMDC Technology Center, cuts the ribbon officially opening the Concept Analysis Lab. *Photos by John Cummings*

REDSTONE ARSENAL, Ala. — The U.S. Army Space and Missile Defense Command/Army Forces Strategic Command (USASMDC/ARSTRAT) Concepts Analysis Laboratory expansion was officially completed with a ceremonial ribbon cutting and an open house on June 9 to introduce the recently expanded facility to visitors and command employees.

Officiated by Dr. Rodney Robertson, former director of the USASMDC/ARSTRAT Technology Center, the short ceremony recognized the new start for the facility.

"It is important to the Technology Center, the command and to the mission we perform that we bring in bright young people and that we have the right facilities to prepare and train them," stated Robertson.

After just more than five months of construction and endless shifting of workspace for the students and employees, the final result is a facility where a new era of analysis and discovery at USASMDC/ARSTRAT can begin.

The completed expansion of the CAL increased the workspace from approximately 1,200 square feet to more than 2,800 square feet. The number of workstations grew from about 12 to more than 35 with additional space in the classroom for group training and feedback sessions.

Initially formed in 2004 at the direction of then Technology Center Director Jess Granone, the CAL has trained young students and professionals on radar concept programs and the use of missile defense algorithms for breast cancer research.

CAL technical efforts have contributed to various programs, including those in space, cyber, dual-use defense-medical algorithm applications and the force encampment protection system, all digital radar used in counter rocket, mortar and missile (CRAM) support.

Along with providing technology concept development and analysis support to the Technology Center, the CAL mission is also to support workforce recruitment and development.

The focal point for the recruitment, training, and mentoring of students and young professionals is the Department of Defense Science,

Concept Analysis Lab students take time to pose with LTG Kevin T. Campbell, commanding general, USASMDC/ARSTRAT, during his visit to the CAL.

XPANSION

"The fact that we are working on something that makes a difference and that the Army is really pushing ... we're excited to be a part of this. It is interesting and challenging work." — Mark Ray

Mathematics And Research for Transformation (SMART) program -which pays students full scholarship, stipend, insurance, and more to encourage science and technology studies.

The CAL expansion allowed for a large growth in the number of young professionals and students working there. This summer, there are 28 students working in the CAL from a variety of Defense Department or Army sponsored programs. This includes 10 full-time students, including three new students from SMART scholarship program and two West Point cadets.

Additionally, there are eight student temporary employment program (STEP), or summer hire, students and two students working with the Army in parallel (SWAP) students.

"The CAL is a key piece to the USASMDC/ARSTRAT Technology Center in many ways," stated Debra Wymer, acting director of the Technology Center.

"This is a valuable asset to growing the workforce and recruiting and mentoring bright, young professionals and bringing them into the workplace as students and interns," Wymer continued.

The Technology Center leadership is aware of how competitive the market is for young engineer and science professionals.

"In a highly competitive environment in Huntsville, we are competing for the best and the brightest young minds with industry and university research labs," said Wymer.

Mark Ray started out as a co-op, earned his master's in electrical engineering at Auburn University, and now is a permanent employee at USASMDC/ARSTRAT. Ray is the lead on the SMDC-ONE nanosatellite technology demonstration ground station.

"As a student here you work on actual programs," said Ray. "For instance, when the SMDC-ONE nanosatellite is launched later this summer the students will be operating the radar."

It's the hands-on portion of the job that keeps coming up in conversation with members of the CAL.

Students at the CAL during the summer of 2010 come from colleges around the country, including Auburn University, University of Louisville, Georgia Tech, Bennett College, N.C., and the U.S. Military Academy. About eight students from local colleges are scheduled to remain at the CAL during the school year.

USASMDC/ARSTRAT, like all other sections of the federal government, faces an aging and retiring work force. Losing that work force without transferring the skills and knowledge to a younger work force could set back the progress made in space and science technologies. By utilizing SMART, STEP and other government sponsored programs, USASMDC/ARSTRAT uses mentors to work with young engineers to train them while capturing the experience of the seasoned employee.

Kevin Nash is the supervisor at the CAL and has been with the project since it was conceived.

"Our Army mission is to look at new space and missile defense concepts to do modeling, simulation and analysis of radar technology we're developing. [But] another mission [is] to bring in co-ops, students and young engineers and try and give them more of a technical training work site," said Nash.

Nash was a co-op student working for SMDC in 1989 and became a full time employee in 1992 when he graduated from the University of Cincinnati. Now, as he is overseeing a program that was similar to the way he became a government employee, he tries to provide the students challenging tasks rather than busy work. He does all he can to keep students out of meetings, trying to instill a whole different culture at the CAL than he perceives in the rest of the government offices.

"The CAL is the future, the next generation of engineers," said Robertson at the opening ceremony. "The goal is to get bright young engineers involved in hands-on work and keep them working for the government."

WOUNDED WARRIOR GAMES

Get Help from Army Space Soldiers

By DJ Montoya, 1st Space Brigade

SSG Mark Bagwell from the 1st Space Brigade puts some muscle into stacking boxes of Warrior Games uniforms for all branches of the service last Friday morning at the U.S. Olympic Training Center, Colorado Springs, Colo. *Photos by DJ Montoya*

SFC Joseph Collins, Pikes Peak Sergeant Audie Murphy Club candidate, goes through each navy Warrior Games shirt to ensure the sizes are correct before participants picked them up Monday.

Army Space Soldiers SFC Joseph Collins and SPC James Fennell prepare snacks and drinking water for unloading to a designated area on the U.S. Olympic training center for participants in the Warrior Games.

COLORADO SPRINGS, Colo.–Volunteers from the 1st Space Brigade assisted in the preparation for the inaugural wounded Warrior Games taking place this week in Colorado Springs.

Approximately 200 wounded servicemen and women from all five branches are taking part in the five-day event through a joint effort between the Department of Defense and the U.S. Olympic Committee's U.S. Paralympics division.

Events include shooting, swimming, archery, sitting volleyball, cycling, track, wheelchair basketball, discus, and shot put.

The call went out for volunteers in the military community, and SSG Gregory Tidwell from the 1st Space Brigade, also the president of the Pikes Peak Chapter of the Sergeant Audie Murphy Club (SAMC), got the go-ahead from the brigade to help out.

Last Friday members from Headquarters and Headquarters Company, 1st Space Brigade (to include SAMC volunteers) went to the U.S. Olympic Training Center here. They were 1SG Anthony Manalo, SFC Joseph Collins, SSG Mark Bagwell and SPC James Fennell.

Their mission was to organize clothing for the participants into categories such as item, service branch, gender, and size for distribution on Monday when the warriors arrived. On Monday evening the Pikes Peak Chapter SAMC participated in the opening ceremony for the Warrior Games at the Olympic Center.

According to Manalo, "We were all in our Service Uniforms representing 'Team Army' and simply showed our support by cheering on the Olympians."

The volunteer participants for the Opening Ceremony were: Tidwell, Manalo, Bagwell, Collins (SAMC Candidate) and Staff Sgt. Benjamin Sharp (Pikes Peak Chapter SAMC Vice President.)

The occasion also proved to be a specials one for Bagwell. "One of my heroes, Roger Starbuck, legendary Hall of Fame former quarterback for the Dallas Cowboys, lit the flame during the opening ceremony," he said.

Bagwell pointed out that Army Space Soldiers were also prepared to provide escort services to VIPs should there be a need.

Manalo summed it up for the entire Army Space Soldier effort, saying, "For this occasion the volunteer work was well worth it.

"This is a phenomenal event to honor our nation's heroes who made their sacrifices to protect our nation and an awesome way to give back to our comrades in arms and to the men and women of our sister services.

"It is an honor to have served with these great Americans and it was also a tribute to give a little of our volunteer work to a life-long sacrifice that these men and women have given to our nation only to keep it safe."

COL Eric Henderson, his wife Jean and daughter, Jessica listen to LTG Kevin T. Campbell's remarks. *Photos by 1SG Dennis Beebe*

The Army's Only Space Brigade

BIDS FAREWELL TO ONE COMMANDER AND WELCOMES ANOTHER

By DJ Montoya, 1st Space Brigade

LTG Kevin T. Campbell addresses the crowd during the change of command for the w1st Space Brigade.

PETERSON AIR FORCE BASE, Colo. – A lone trumpet from Fort Carson's 4th Infantry Division Band signaled adjutants called the troops into formation on the parade grounds at Peterson's Patriot Park Tuesday morning.

The occasion marked a change of command from COL Jeffrey A. Farnsworth to COL Eric P. Henderson for "the Army's only Space Brigade."

The 1st Space Brigade has three one-of-a-kind battalions: the 53rd Signal Battalion (satellite control), the 1st Space Battalion, and the 117th Space Battalion Colorado Army National Guard. The 53rd Signal and 1st Space Battalions are charged with providing day-to-day Space support to the operational Army.

Since the fall of 2001 members of the 1st Space Brigade have been providing Space support to the Global War on Terrorism. Each day, the command's Active and Reserve Component Soldiers, Department of Defense Civilians, and Contractors work on the cutting edge of normalizing space support to the Total Army throughout the full spectrum of military operations.

The change of command event was officiated by U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Commanding General, LTG Kevin T. Campbell, who in time-honored tradition received the brigade's colors from Farnsworth, the departing commander, and passed them to incoming commander Henderson, charging him with responsibility and welfare for the brigade.

COL Eric Henderson (left) receives the brigade colors from LTG Kevin T. Campbell.

From left to right: COL Jeffrey Farnsworth, LTG Kevin T. Campbell and COL Eric Henderson.

"You get one chance at this in life to be a brigade commander – two years. The whistle blows and it is up to you how fast and hard you are going to run. I think Colonel Farnsworth has run pretty hard, pretty fast for the two years. But he was a man that never whipped his Soldiers. He did it with grace and ease. And made all the right things happen, mission wise, across this command that is spread out globally east to west.

"You certainly have done a superb job. I look at you and measure you in the terms of passion that you have shown for this brigade. The 120 percent you gave to your Soldiers and Officers day in and day out."

Campbell additionally pointed out that Farnsworth next assignment is in the Pentagon with the Office of the Secretary of Defense.

"There couldn't be a better guy to go back to Washington and help us march forward with space making sure that Army space stays engaged the way it should with the United States Air Force and the other services."

Campbell then turned to Henderson to welcome him as the new brigade commander.

"Eric has been in the unit before and is no stranger to this business."

Campbell referred to Henderson's last assignment as the Space Support Element Division Chief, U.S. Army Central Command, Fort McPherson, Ga. /Camp Arifjahn, Kuwait.

"He knows what the Soldiers need from space.

"I wish you every success. What you need to understand when you look out on that field is you are not alone. There is your foundation; they will not let you down. I know you are not going to let them down. Thanks for taking on this job."

In his closing remarks, Farnsworth stated, "I have had the honor and privilege to serve the Soldiers of this great brigade for two fantastic years. In a few moments Eric Henderson will take charge and continue to advance the brigade colors and care for our wonderful Soldiers."

"And so it is that one more chapter of the 'Army's only space brigade' is now written and the next chapter begun.

"Upon reflection it is a remarkable chapter. Not for anything I have done but for the great accomplishments made by the nearly 1,000 Soldiers in 14 companies and four detachments stationed or deployed in 11 different countries, including Iraq and Afghanistan.

"Eric you are getting a great first in space team. There is none better. I've asked these control warriors, space warriors, and space cowboys to provide you with the same great support they have given me. I know they will, and I am confident that they will attain new heights on your watch."

With the customary idiom – all current policies and standard operating procedures are still in effect – the Black Hills, S.D., native Henderson said to the troops and audience, "To the Soldiers I see here today and across the globe I will do my best to lead. And I am honored to serve with you."

Prior to the ceremony, Campbell awarded Farnsworth with the Legion of Merit Medal for meritorious service as commander of the 1st Space Brigade, and BG Stuart C. Pike, Assistant Adjutant General for Space, Colorado National Guard presented Farnsworth with the Colorado Meritorious Service Medal.

CSM Timothy Czuba leads the color guard and units of the 53rd Signal Battalion off the field following the conclusion of the change of command ceremony. *Photo by DJ Montoya*

KERR SIGNS OFF JONES SIGNS ON

53rd Signal Battalion Conducts Change of Command

By DJ Montoya, 1st Space Brigade

PETERSON AIR FORCE BASE, Colo. – The color of Army signal orange highlighted the parade grounds of Patriot Park on Peterson as Army Space Soldiers from the 53rd Signal Battalion, 1st Space Brigade, conducted a change of command ceremony on the morning of June 23.

The battalion's colors were passed from outgoing commander LTC Patrick L. Kerr to incoming commander LTC Benjamin C. Jones by COL Jeffrey A. Farnsworth, commander of the 1st Space Brigade before a crowd of VIPs, Soldiers, government Civilians, Contractors, and Family members.

Prior to the ceremony, Farnsworth presented Kerr with the Legion of Merit for his service as commander of the 53rd Signal Battalion.

The 53rd is the oldest operational battalion in the 1st Space Brigade and the only unit in the Department of Defense that conducts payload and transmission control of the Defense Satellite Communications System and Wideband Global System satellite constellations. The management of these constellations by the 53rd ensures continuous communications connectivity for mission critical subscribers from the president to warfighters and national agencies engaged in the Global War on Terrorism.

Farnsworth complimented members of the battalion by stating, "Standing before you are the commanders, first sergeants, and key leaders from around our world that day-to-day with their Soldiers are responsible for mission success for the 53rd Signal Battalion."

LTC Benjamin Jones receives the battalion colors and command responsibility for the 53rd Signal Battalion from Col. Jeffrey Farnsworth, commander of the 1st Space Brigade.
Photo by DJ Montoya

LTC Benjamin Jones, new commander of the 53rd Signal Battalion, addresses the troops and audience during a change of command ceremony
Photo by Larry Hulst & Dennis Howk

"The mantel of command has now passed and with it the responsibility for successful mission accomplishment and care of over 300 Soldiers and their Families at seven sites in the continental United States, Germany, Japan, and Hawaii. This is a special battalion with a unique responsibility to control payloads and transmissions 24/7/365 without fail.

"Lieutenant Colonel Col. Pat Kerr has met this awesome responsibility with distinction. Under his leadership the control warrior team has taken an organization designed for one mission and adapted it to take on three.

"Pat you have done a superb job. You are a great leader, team builder, and control warrior. Thank you for all your hard work and sacrifice."

Farnsworth turned his attention to Jones by saying, "Today we welcome Ben and his family to the 1st Space team. Ben comes with great credentials, experience, and superb record of success. Ben you have a challenging mission and situation but you have a super global team to get it done."

Among his many acknowledgements to those who assisted him during his tenure as battalion commander Kerr said, "The Soldiers on the parade field look great. They represent a whole bunch of folks around the world, but the gentleman hanging behind our national colors – Command Sergeant Major [Timothy] Czuba – demands that. He has been a great asset to the unit and a personal mentor to me for two years. Not only him, but all the Soldiers standing represent this superior battalion.

"I have to thank them for their duty on and off. They are the ones that make it happen. Sometimes the commander is out front and has the responsibility to bear, but the work is done in this battalion by the Soldiers … the backs of E4s, E5s, and E6s. And that's why they are not here and I want to recognize them.

"This is a brigade staff officer signing off the net," said a tearful Kerr whose next assignment is with the Defense Information Systems Agency.

Taking his turn addressing the crowd Jones stated, "To the Soldiers, Civilians, Contractors, and Families of the 53rd Signal Battalion, thank you for your very warm welcome."

"I am proud to be part of this team. And I am committed to your well being and quality of life. I will do everything I can to build upon what Pat Kerr has worked to develop. I will work to ensure Soldiers and Civilians of the 53rd Signal Battalion are prepared to face the many challenges that lie ahead.

"In order for us to be successful with our extremely vital and highly visible mission sets we must continue to develop highly disciplined, well trained Soldiers led by caring leaders. I am confident we will be successful as a team and we will continue the tradition of excellence. 53rd Signal Battalion – we control the high ground!"

Prior to becoming the new commander for the 53rd Jones was the command, control, communications, computers, and intelligence action officer for the Pakistan-Afghanistan Coordination Cell Directorate Joint Staff and action officer for Joint Testing Branch, Enterprise Services Division Joint Staff J6.

Gregory Hatfield and SGT Clayton Ratliff *Photos courtesy FWC DCD*

TRAINERS VISIT JTAGS PACIFIC COMMAND

By Larry Mize, FWC DCD

Gregory Hatfield and SGT Clayton Ratliff joined the 1st Space Company operations review at the Joint Tactical Ground Stations (JTAGS) in Korea and Japan May 2-14. The intent of the visit was to gather the most up to date operational information to ensure JTAGS operators receive the most realistic and operationally relevant training during their tenure at the JTAGS school. Visiting the forward JTAGS sites is a vital part of the training process that not only gives an azimuth check to the school, but allows the forward sites to have input and influence the training of the operators that will be assigned to them in the future.

To accomplish the task, Hatfield and Ratliff spent four days at each site interviewing all the detachment's personnel and sitting shift with the crews. The feedback was very positive and for the most part the consensus was that the school was on par and the newly arriving operators had the tools they needed to start their rigorous certification process. Additionally the team was able to provide products and mission related information that will greatly enhance and add more realism to the training.

This was only the first of two trips planned for the year. In July the team will travel to JTAGS-Germany and JTAGS-Central Command. Once the trip is complete and all data gathered has been analyzed, the School will make the necessary adjustments to the JTAGS training in order to meet the needs of the 1st Space Company.

Army Space Cadre Basic Course, JTAGS Detachment, Korea, Mar. 29 - Apr. 1, 2010

Army Space Cadre Basic Course, JTAGS Detachment, Japan, Mar. 22-25, 2010

Flipsids

USASMDC/ARSTRAT FEATURES

Top Soldiers COMPETE

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