



Army Space Journal

The U.S. Army Space and Missile Defense Command publishes the **Army Space Journal** quarterly, with special editions as required. The publication consists of four sections, FROM THE TOP – Leadership Updates; JOURNAL FORUM – Space Topics; TIP OF THE SPHERE – Space Cadre News/Features; and FLIPSIDE – USASMDC Features.

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

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By LTG Kevin T. Campbell

Without thought many Americans use Space to gather news, weather, sports, entertainment and navigational information. But Space is more than that to the Warfighter. To the Warfighter it represents critical enablers that are essential in today's battlespace.

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By CSM Ralph A. Borja

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Space Making a Difference **8**

By BG Kurt S. Story

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The Army Space career field is growing at a steady pace with a variety of different Space jobs. In his column, COL Smith explains why he believes he has the Best Space Job in the Army.

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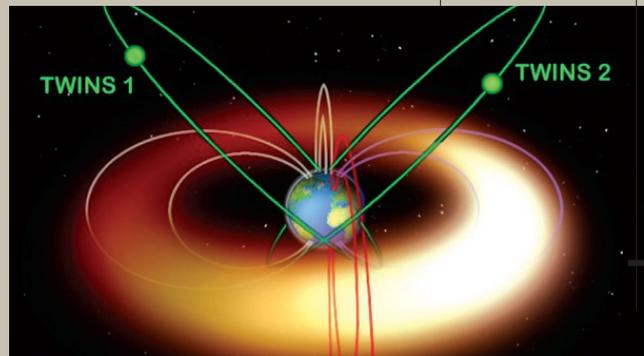
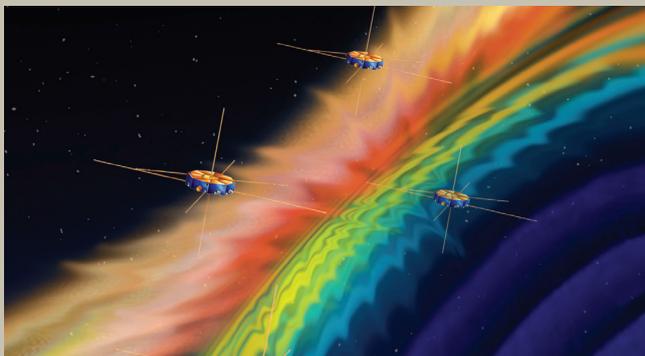
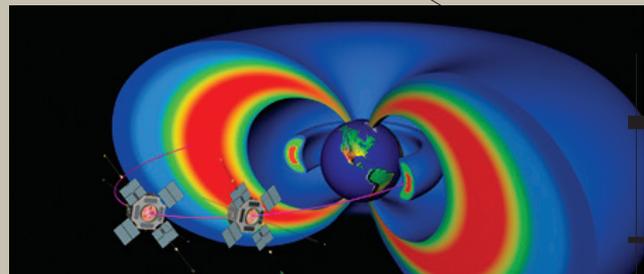
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Space Topics

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Army Space Cadre Learn from Southwest Institute Research Scientists
MAJ Stacy Godshall

In his article, MAJ Godshall states the importance of continuing education, especially for those in the Army Space profession. He reviews the various venues where professional development can be obtained and highlights the Masters of Science in Space physics degree program at The University of Texas at San Antonio.



Tip of the Sphere

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The Way it is

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28 July 2009

“And that’s the way it (was).”

I think the good Uncle Walter would excuse a young editor for using his signature sign off to start the blog for this special edition of the ASJ. Watching the CBS Tribute to Walter Cronkite that aired in primetime on July 19 shortly after his death, I was struck by two Space-related historical events: The Explorer Satellite launching into orbit and men landing on the moon. These are appropriate events to think about while considering how integrated Space is to military operations – and, therefore, “Space, the best job in the Army” – not so much for the occurrences themselves, but for what they teach us about what we do.

CBS aired the footage of the Explorer Satellite launch in 1958 upside down. Yes, there was black-and-white footage of Walter talking about how the Defense Department entered the Space effort by putting Explorer into orbit. And, as the news anchor spoke in the grainy clip of the original newscast, there was the upside down launch of the modified Jupiter C Rocket with Explorer on its tip showing in a window above Walter’s head in the newsroom. Apparently unaware, Walter spoke on for a few moments about the brilliance of this before acknowledging the mistake with the promise that they’d get it turned right side up soon.

The second event goes beyond the nation’s fascination with men landing on the moon in 1969 and planting a U.S. flag there. Here was Walter who himself was fascinated with the idea and prospect of Space exploration – perhaps planted or encouraged by the Explorer launch – putting his heart into the story. When he announced that President John F. Kennedy was dead, he did it with an understandable emotion that cannot be contrived. Equally when he announced that Apollo 11 had landed on the moon, Walter was clearly moved over what had been achieved. In fact, Walter’s passion was extremely evident as he communicated the many events that moved our nation.

Until I watched the tribute to Walter Cronkite, I did not really see the connections. I was born a few months after Explorer went into orbit January 31, 1958 – wasn’t even aware of the historic launch until Scientist Ed Kiker drug a surplus Explorer Satellite into my office in 2001 for display in the Command’s operational hub in Colorado Springs, Colo. When the President was shot on November 22, 1963, I was a toddler and vaguely aware. But I remember watching the Apollo 11 footage while in the fifth grade shortly after the Spacecraft landed on July 20, 1969.

To me, it is too overwhelming to fully comprehend the impact of Space on our world today. Yet these iconic events – a rocket launch with America’s first satellite, the assassination of a US president who had the vision for Space exploration and US men walking on the moon – clearly lay the foundation. Today, astronauts travel to Space riding on rockets and the military uses capabilities tied to important data that travels through satellites.

I am not a Space expert. I am a journalist. There’s a parallel here that I am making from the tribute to Walter Cronkite. It has to do with capacity of calmness in dealing with mistakes while exploring new things – upside down footage. It has to do with the reality of passion and human courage. Space is definitely different today, intimately and silently inlaid into the nerve center of human activity. The challenge to the military Space community is to intensify the connection to help national security. The challenge to journalism is to inform understanding. The calmness and passion of Walter Cronkite are necessary ingredients for both.

Posted by Mike Howard at 12:37 PM

 Comments



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What are you doing?

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The Army Space Journal link will be working later today...check it out ...

<http://smdc-armyforces.army.mil/ASJ>

Latest: Answering the question ...Why does Space matter to the Army. Hope to have the Army Space journal url up and running tomorrow.

Update

Home



theASJeditor Answering the question ... Why does Space matter to the Army. Hope to have the Army Space Journal url up and running tomorrow

about 20 hours ago from web



theASJeditor I see Army War College classmates Michael Baker, Richard Kaley, Thomas Lewis, Marshall Michels and Michael Wells made the Colonel's list!

8:04 AM Jul 21st from web



theASJeditor Interesting from the CBS Walter Cronkite Tribute Sunday night ... when Explorer Satellite went up in 1958, CBS ran the footage upside down.

7:55 AM Jul 21st from web



theASJeditor More on Symposium ... to be held 3-7 Aug in Colorado Springs Theme is Space - Best job in the Army

2:51 PM Jul 20th from mobile web



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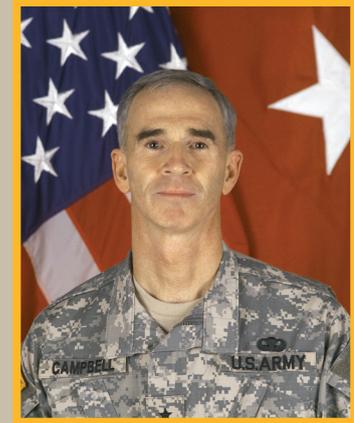
Minnesota Educators watch launch of U.S. Army Astronaut Tim Kopra on STS-127, July 15. The group watched the launch from U.S. Army Space and Missile Defense Command/Army Forces Strategic Command operations Headquarters, Building 3, Peterson Air Force Base, Colo.





LTG Kevin T. Campbell

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



Army Space Cadre

– Linking Warfighters to Advanced Space Capabilities

Welcome to the special edition of the summer 2009 Army Space Journal, and to those attending the Space Cadre Symposium, welcome to Colorado Springs.

“Space – the Best Job in the Army,” is the theme for the symposium and certainly is emblematic of the professionals who make up the Army Space Cadre.

Many of us grew up hearing that Space was “the final frontier.” Today, Space is no longer a frontier but a domain that is critical to maintaining the safety and well-being of America, our allies and our friends. For most Americans, Space-enabled technology is invisible as it provides nice-to-have items like news, weather, sports, entertainment and GPS. It also enables some essential things such as finance, transportation, utilities, and search and rescue.

For the Warfighter, Space represents more than just “nice to have,” it represents critical enablers that are essential in today’s battlespace. Critical elements such as persistent intelligence, surveillance, and reconnaissance (ISR), integrated missile defense, friendly force tracking, and enemy force tracking provide Warfighters with advanced capabilities. Those vital capabilities are made possible through the efforts of the Army Space Cadre

ROUND”

“Few people – military and civilian alike – really understand how Space-enabled products are transmitted or created. Truly, all they want to know is how fast they can access the information.”



and their counterparts in our sister services. Few people – military and civilian alike – really understand how Space-enabled products are transmitted or created. Truly, all they want to know is how fast they can access the information.

Bill Gates states in his book, *Business @ the Speed of Thought*, “if the 1980s were about quality and the 1990s were about reengineering, then the 2000s will be about velocity.”

I believe we are at the point in military history where decisions are starting to be made at the “speed of thought.”

It is generally agreed that we are in an era of persistent conflict in which we will continue to be challenged asymmetrically. Hybrid threats such as terrorists, criminal elements, and irregular forces will combine and create complex challenges. This strategic environment is contained within a much larger mosaic, one which futurist, Thomas Friedman, refers to as a “Flat World.” This is a world where our normal line and block hierarchy is flattened through the use of technology.

Key to operating at the speed of thought in a flat world is a change in how and where we process information. Technology has helped flatten the hierarchy and enabled Warfighters at the tip of the spear to receive and act on more information than ever before.

Also at the tip of the spear, and at the confluence of a flattened technological hierarchy and a burgeoning “Information Age,” is the Army Space Cadre. These Army Space professionals link Warfighters to advanced Space capabilities. Providing Space capabilities to the Warfighter at the “speed of thought” requires educated, trained and versatile Space professionals. Sharing information and acting on information at the lowest level requires

competent and confident members of a team. Competence is a result of both individual and institutional actions. Individuals have a responsibility to become students of their profession – commit to lifelong learning, read. Organizations have a responsibility to educate and train their team members – spend the time and resources to send individuals to career-enhancing courses. The Army Space Cadre Symposium is an excellent opportunity to gain valuable information about our profession as well as to network with those who will ultimately be your teammates.

The agenda for the Army Space Cadre Symposium is robust with speakers from across the services and agencies that should enlighten and educate those in attendance. Take advantage of the educational opportunity as we try to make, “Space – the Best Job in the Army.”

“SECURE THE HIGH



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



Technological Advancements

Make Space the Best Job in the Army

The focus of this year's Army Space Cadre symposium is "Space, the Best Job in the Army." Looking back over my career as a Soldier, I've watched technology move forward at an astonishing pace. In thirty years, we've gone from mainframe computer systems hosted at colleges, universities and government facilities to advanced home computer systems – many of which have high speed internet access. The Army's rapid advance in the use of Space enablers has paralleled the progress of technology.

At the end of the Vietnam War, the Army used very few Space enablers. Military Satellite Communications was limited to a handful of 5 and 25 KHz transponders on Air Force satellite communications satellites and Navy satellite communications satellites which provided virtually no communications capability for the Soldier in the field. Almost all Intelligence, Surveillance and Reconnaissance data was collected by troops in the field, and topographical maps used to maneuver may or may not show the new manmade lake, destroyed bridge, or other obstacle currently in your path.

Today, we have more than 4 GHz of commercial satellite communications going into one combatant commander's theater

ROUND"

“ Obviously, the roles and missions of Army Space Cadre members are varied and diverse. All require unique skills and highly specialized training, and all provide Cadre members with the unique opportunity to significantly contribute to the Warfighter’s ability to successfully execute mission objectives. ”

of operations alone. We obtain Intelligence, Surveillance and Reconnaissance from multiple sources – commercial and military satellites, unmanned aerial vehicles and traditional reconnaissance methods – providing detailed and current information about our operating environment, we obtain instantaneous missile warning data from Space-based sensors, and we use global positioning satellites to navigate to precise locations around the globe and to track the location of friendly forces.

One could easily argue that Space enablers have become Space dependencies, but that is a discussion for a different day. Today, I’d like to address the critical contributions members (Officer, Enlisted and Civil Servant) of the Army’s Space Cadre makes on a daily basis in support of our Warfighters.

Members of the Army Space Cadre are involved in all aspects of the Army’s use of Space enablers. Cadre members help the Warfighter properly articulate, document, validate and advocate their requirements. Other Cadre members perform research and development in the search of new ways to meet these requirements, while still other Cadre members work in or with program offices and/or the Operationally Responsive Space office to develop and field systems to meet validated Warfighter

requirements. Army Space Cadre members perform verification and validation functions on newly launched Space enablers and ultimately serve as operational crew members providing Space and missile defense support to the Warfighter. Finally, Cadre members are embedded with the Warfighter, helping assure their access to and use of Space enablers.

Obviously, the roles and missions of Army Space Cadre members are varied and diverse. All require unique skills and highly specialized training, and all provide Cadre members with the unique opportunity to significantly contribute to the Warfighter’s ability to successfully execute mission objectives.

No matter what role or mission Army Space Cadre members perform, each Cadre member contributes to the Army’s ability to successfully fight and win the ground war. For Army Soldiers and Civilians serving in the Army’s Space Cadre, Space, really is the best job in the Army.

“ SECURE THE HIGH 



BG Kurt S. Story

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



Space

Making A Difference

Welcome to the 6th Annual Space Cadre Symposium and to this special edition of the Army Space Journal. The planners for this event and publication got it right when they selected the controlling idea or theme – Space really is the best job in the Army. I say this because I know there is a high-degree of respect for the value that Space-based capabilities deliver to the fight and the overall Warfighter mission.

MAJ Glen Hees, a Space operations officer in the command's G-3 section, summed up this value the best: "Space capabilities save lives. The ground Warfighter doesn't care how in-flight ballistics affect a Hellfire missile – he cares about taking out the bunker he's receiving persistent sniper fire from. Likewise, the Warfighter doesn't care about the fact that his communications are traveling thousands of miles through Space, he just wants his communication to get through. Space professionals often struggle with the question of whether they are truly having an impact. The basic tenets of shoot-move-communicate have not changed in the last 30 years. What has changed is the ability of Space to make these tenets better by helping the Warfighter gain situational awareness through timely terrain and imagery data and friendly force tracking. In this day of 'normalized' Space, many of the capabilities are taken for granted, but they nevertheless are vital to the Warfighter and his mission."

It's easy to point out indicators that this is a great career field – factors such as selection rates among Space operations officers for promotion and schools, availability for them to attend graduate schools, transfer of Space-related skills after retirement, expansion into new and exciting roles as Space potential develops, and opportunity to work with state-of-the art technology. These could be at least contributing factors for more than 80 officers becoming FA40s in 2007, 2008 and so far this year from the active component Army while nearly 735 enlisted and more than 250 government civilian employees were classified Space enablers this year. Even 17 Army captains turned down the Captains Incentive Program offer of \$25,000-\$35,000 to become FA40s.

Another indication that Space is a respected job in the Army community is the success of its members in Army terms – promotions and selection to Senior Service Colleges. The promotion boards show that Space professionals are holding their

ROUND"

“The reason there is respect is that the people in the Space cadre community make a difference.”

own and, in many cases, are doing better than the other functional areas they compete against in the Operational Support Career Field. In 2008, 50 percent of the officers in the primary zone for colonel were selected for promotion compared to 47.9 percent from the Operational Support Career Field. We also had two lieutenant colonels selected to attend a Senior Service College.

In the 2008 Lieutenant Colonel's board, FA40s were 13 for 13 in the primary zone and two were selected below the zone. In 2009, one made it above the zone, 8 of 10 from the primary zone for a 69.2 percent select rate against the Operational Support Career Field rate of 65.4 percent, and one was selected below the zone. From the 2008 and 2009 Majors boards, all the captains in the primary zone were selected. The selection rate for the Operational Support Career Field overall in those two years was 86.8 and 89.6 percent respectively.

Not bad – not bad at all!

There is also opportunity in terms of civilian education and life-after-military. Every year the Army pays for six officers to start on their master's degree through Advanced Civilian Schooling and for two officers to take advantage of the Training with Industry Program. Additionally, the Army Space Personnel Development Office – formerly the Space Cadre and FA40 Proponency Office – is working to create at least one PhD program. In addition, experience in Space operations transfers well into civilian pursuits – not all career fields can make that claim. Of those who've retired since January 2009, four are continuing to serve the military, one as an Army government civilian and three as defense contractors. One other sought and accepted a position as a policeman, again still serving the community.

I'd like to tell you about two officers who chose the Space field and why they think Space is valuable to the Army.

In 1999 when he designated “FA40” on his preference sheet, LTC Bob Klingseisen had already been involved in the Space field for nearly 10 years and knew he wanted to continue. He'd been a combat and topographical engineer. The Army had sent him to get a master's degree with a geospatial sciences concentration – he later taught the subject at West Point. He attended the Command and General Staff College and stayed at Fort Leavenworth, Kan., to help write the tasks, conditions, and standards for the first FA40 qualification course. Later, he was one of the “guinea pigs” for that first course. Since then, Bob has worked at the strategic and operational levels at what was then U.S. Space Command, U.S. Strategic Command, and the National Security Space Office in Special Technical Operations, Space operations and Space policy and strategy billets.

He said that he's found the field to be interesting, challenging, and extremely rewarding. He starts the Army War College this month (congratulations, Bob). From his experience, he noted this about the value of Space to our military: “Without the capabilities

provided by Space systems – such as communications, PNT (positioning, navigation and timing), missile warning, remote sensing – that we have grown accustomed to, we would have to revert to an industrial age fighting force. This is something we are ill-equipped for, both mentally and physically.”

LTC Mike York added that the best job in the Army was being a commander, but Space is a close second. When he was a senior captain in 2000, he saw both risk and opportunity in the new functional area and wanted to be part of it – and had to put up a small fight to finally get it. He was selected to attend the Naval Postgraduate School as an FA40, but the designation board placed him as an FA30! So Mike appealed and was made an FA40. Since then he has served in Special Technical Operations and Space billets at the former U.S. Space Command, U.S. Strategic Command and in the 82nd Airborne Division. Currently he is an Operations Branch Chief and Special Technical Operations planner in U.S. Africa Command. Mike said that he has worked in unique programs and has had exposure to operations which would have never happened had he not been an FA40.

Since he can't be a battery commander again, he's glad to be an FA40. He observed this about Space value: “Space matters because the medium of Space provides access to data and information that supports not just the multitude of military functions for operations – like intelligence and communications – but it also has an impact on civilian daily life. Something as simple as a Satellite Television broadcast can have an impact on military forces and interaction with a country's populace. Using remote sensing and geospatial information for water source analysis to potentially support Individual Displaced Personnel Camps can have an effect on conflict resolution or deter a crisis.”

This brings us back to the original point about respect for the work that the Space community provides. The reason there is respect is that the people in the Space cadre community make a difference. They face many challenges to understand and fully use leading edge technology in our military context as the full potential of Space is further explored and realized. An example of this challenge is in cyber warfare – FA40s and Space enablers will be involved in some way as those cyber electrons do travel through Space systems. The Space cadre leads and trains Soldiers, develops Army Space policy, writes requirements for Warfighters, provides commercial imagery, teaches in the schoolhouse, advocates Army equities, serves in joint Space-centric agencies, figures out how to reconstitute Space, and trains to fly in it.

So the future is bright because we have great Americans in our Space cadre who can see the possibilities and who are ready to plot their own destiny and that of this young career field. All of this considered, I think you'd have to agree that Space is a darn good job, if not the best in the Army.

“SECURE THE HIGH



Dr. Steven L. Messervy
Deputy Commander
Research, Development and Acquisition



From Concept to Combat

The Army Space Cadre Symposium is an excellent forum for sharing ideas and information about the Army Space profession. The speakers scheduled to address the symposium represent a cross-section from the services and agencies and should make this a tremendous opportunity to learn and to share information with other Space professionals.

Since assuming the position in May as the Deputy to the Commander for Research, Development and Acquisition, it has been my privilege to provide oversight and management of the RDA elements of the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command (USASMDC/ARSTRAT). My focus mirrors that of our commander – to provide the Warfighter advanced capabilities in Space and missile defense.

My duties entail heading the Contracting Activity; directing and controlling the accomplishment and execution of all research, development, and acquisition related missions assigned to USASMDC as well as overseeing all technical development and acquisition performance. The RDA subordinate elements of: the Space and Missile Defense Technical Center, the Technical Interoperability and Matrix Center, and the Contracting Acquisition Management Office, are able to reach across industry, military and academia to provide cost-effective solutions to Space and missile defense challenges faced by our nation's

ROUND"

“As Army Space Cadre, you are a part of the process – by helping us identify needs and by providing feedback. It is vital that we hear from you – what works and what doesn’t work.”

COMBAT

Warfighters. We like to say that we take Warfighter needs from “Concept to Combat.”

Our efforts are focused on Space superiority, tactical responsive Space, high altitude long loiter, cyber, directed energy, and battlefield integration (with several programs in each one designed to answer some of the identified gaps in Space capabilities). Each of the RDA elements are made up of civilians and military personnel dedicated to developing or acquiring the best Space and missile defense capabilities possible. From creating counter improvised explosive device systems, to building responsive small satellites, to blazing the trail in laser research; our scientists and engineers are tireless in the pursuit of solutions.

This doesn’t mean we have all the answers. We may not even have all the questions – this is where you come in. As Army Space Cadre, you are a part of the process – by helping us identify needs and by providing feedback. It is vital that we hear from you – what works and what doesn’t work. We also want to assist in finding the answers to some of your challenges. You serve at the tip of the spear providing support to our Warfighters.

I want you to know that there is reachback capability to our experts in the labs. If we don’t have the answers, we can certainly find the right people or organizations that do have the right answers. I invite you to communicate with our organization. For RDA assistance with Space and High Altitude Issues: Dr. Rodney Robertson: (256) 955-3520; for Battlefield Integration Issues: Debra Wymer: (256) 955-1416; and for Acquisition Issues: Cathy Dickens: (256) 955-3410.

We are all part of a team of teams dedicated to providing support to the Warfighter. Take advantage of the information being shared at the symposium this week, but remember that you have just as much to add as you have to gain. I look forward to hearing from you.

Biography

Dr. Steven L. Messervy is the Deputy to the Commander for Research, Development and Acquisition at the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command located at Redstone Arsenal, Ala. As the deputy to the commander, Dr. Messervy manages USASMDC/ARSTRAT’s RD&A activities and is responsible for overseeing all materiel development functions, test and evaluation activities, and support.

Since 2005, Messervy served as the general manager of the North Atlantic Treaty Organization Medium Extended Air Defense System Management Agency (NAMEADSMA) in Huntsville, Ala. He has also served as the deputy Program Executive Officer (PEO) for Missiles and Space, Redstone Arsenal, Ala.

Messervy has more than 28 years experience in the research, development, and acquisition business which includes aviation, tactical missile and unmanned aerial vehicle systems, national and theater missile defense, space, strategic defense laser, missile, and other technology programs.

He has a doctorate degree in systems engineering and operations research. He is a graduate of the Defense Systems Management College Program Manager’s Course and the Army War College. He was named a Sloan Fellow and completed a master’s degree from the Massachusetts Institute of Technology. He is also a colonel in the U.S. Army Reserve.

“SECURE THE HIGH



COL Bruce Smith
Director
Directorate of Combat Development
Future Warfare Center



The Best Space Job in the Army

In this edition of the Army Space Journal we are focusing on the best Space jobs in the Army. You will read about various individuals who are serving in different commands and organizations within our Army providing and advancing Space capabilities in a variety of jobs. The jobs are unique, and the required skill sets of the individual positions vary also. Yet each job is vital to developing, integrating and providing Space-based capabilities to the Army and most importantly to the Soldier. As articles in this journal have stated before on many occasions, the Army is not just a Space-enabled force, rather it is a Space-dependent force. The Army today cannot operate without Space-based communications, intelligence, surveillance and reconnaissance, or positioning, navigation and timing systems. The Army requires a highly trained Space cadre, with a broad skill set, to use and exploit the potential of Space to the fullest extent possible.

While many FA40s may argue that the Director of Combat Development is not the best Space job in the Army, I would have to disagree with them. It is certainly not the most exciting or glamorous Space job, and it often is frustrating because progress is often slow and constrained by a rigid bureaucratic processes. However; that being said, it is one of the best jobs in the Army because combat and force development activities determine how the Army will be organized, manned, trained, equipped, and operate in the future. The Directorate of Combat Development is not just looking at today's force, and working to ensure it has what it needs, but is looking at the future force and trying to determine what threats it will have to counter and

ROUND"

“Space capabilities and systems cross proponentry ... boundaries. ... the Signal Center is responsible for developing satellite communication requirements and systems; the Military Intelligence Center has responsibility for Space-based ISR systems; while the CIO-G6 serves as the lead for Position, Navigation and Timing.”

what capabilities it will need to operate, survive and win on future battlefields. It is intellectually challenging work and is never dull as new issues and problems surface all the time that need to be addressed and solved.

The Directorate of Combat Development also offers unique challenges in that it forces directors, and in fact every Directorate member, to work with a variety of personnel from organizations across the Army as well as the Department of Defense. Space capabilities and systems cross proponentry and Service boundaries. Within the Army, the Signal Center is responsible for developing satellite communication requirements and systems; the Military Intelligence Center has responsibility for Space-based ISR systems; while the CIO-G6 serves as the lead for Position, Navigation and Timing. Of course Air Force Space and the Space and Missile Center are responsible for developing most of the requirements and building the on-orbit systems. The Directorate of Combat Development works closely with each of these organizations to ensure Army operational requirements are addressed and met in a coordinated manner. At the same time the Directorate works with U.S. Training and Doctrine Command to develop the training and doctrine, as well as the force structure, needed to support our Space forces' current and future operations. The Directorate cannot succeed by itself, but must work in a collaborative, and often competitive, environment to advance Army Space. Consequently, the director must negotiate, cajole, and remain flexible in order to forge and advance these partnerships.

The Directorate of Combat Development is part of the Future Warfare Center and is comprised of over sixty personnel, uniformed military, Department of the Army Civilians and contractors who are located in three states. The Directorate is organized into four divisions - Space Capabilities, Missile Defense Capabilities, Force Development, and Training and Doctrine. Each division has a set of unique responsibilities and works with specific organizations and processes; however their work

is integrated through U.S. Training and Doctrine Command's DOTMLPF construct. DOTMLPF is the acronym for doctrine, organization, training, leadership and education, materiel, personnel and facilities. DOTMLPF provides the framework to assess an operational issue and develop a solution for the operating force. The Directorate of Combat Development's DOTMLPF related work is guided by numerous U.S. Training and Doctrine Command and Headquarters, Department of Army processes that complicate our work. Directorate personnel need to be both Space subject matter experts and have a thorough working knowledge of how the Army's combat development, force development, funding and acquisition processes function. The director must understand the Army's strategic environment, in terms of operational priorities and funding constraints as the Directorate of Combat Development develops and advocates for Space capabilities.

The most enjoyable part of being the director is the people I get to work with. The Directorate workforce whether military, civilian, or contract support personnel, is simply outstanding. They are a highly dedicated and professional group of individuals who consistently exceed my every expectation. They understand the importance of what they do and how their actions directly relate to the operational capabilities of the American Soldier, and the welfare of our nation. They are thoughtful, proactive and unafraid to take the initiative and fight for what is right. As a group they model our Army's values day in and day out. They make coming to work a privilege.

I will close by restating what I began with, "I have the best Space job in the Army." I highly encourage FA40s to seek an assignment in the Directorate of Combat Development. You will find the work challenging and personally rewarding. Most importantly you will be making a tangible contribution to our Army by developing and bring Space capabilities to our forces.

“SECURE THE HIGH

Welcome to the Army Space Cadre Symposium 2009

Why is Space the Best Job in the Army?



“If I understood the question, “why Space is the best place to work,” I would tell you this. From my foxhole it is an acknowledgement that you have mastered your military occupation skill as a Soldier. And you have been recognized by that in order to go and do graduate level work that has a very relevant mission set in support to the Warfighter in many different ways throughout all of our services and the other agencies throughout Department of Defense.”

CSM Kevin B. McGovern
Former 1st Space Brigade Command Sergeant Major



“We have a real world mission every day 24/7 365 that truly makes a difference, we are not a unit that just comes to work to clean a motor pool. Our Soldier’s understand the true meaning of maintenance because their equipment is used every day to provide the blanket of freedom that keeps our Soldiers out of harms way and allows the American public to sleep peacefully each and every night. As other units rotate in and out of harms way and return to home station for R&R our Soldiers perform their war time mission for their entire 3 year tour 24/7 365, going home each and every night with that the feeling of job satisfaction providing that blanket of freedom. I know of no other unit in the Army that provides that feeling.”

1SG Steven M. Adams
1st Space Company, 1st Space Battalion, 1st Space Brigade

The purpose of the Symposium is to provide an operational update to Army Space Cadre members, and educate them on force improvements and new initiatives at strategic, operational and tactical levels; educate Army Space Operations Officers on their roles, responsibilities and opportunities; provide a forum for Army Space Cadre members to discuss Army Space issues that impact the Army and their community. The following pages provide an overview of topics, guest speakers, and presenters.

Why does Space matter?



“FM 3-0 covers the key Battle Command components: Understand, Visualize, Describe and Direct. Warfighting commanders at every level implement these components through implementation of Space capabilities. For example, commanders request and receive up-to-date imagery through the Commercial Imagery Teams (CIT) and Army Space Support Teams (ARSSIT), giving them the ability to better understand and visualize their ever-changing battlespace. Relying heavily on Satellite Communications (SATCOM), commanders are able to visualize operations utilizing friendly force tracking systems and Unmanned Aerial Systems (UAS), giving them the ability to clearly describe intent to their subordinates and adjacent units. Lastly, a commander’s job is to direct; protected SATCOM allows this to happen in adverse and harsh conditions, making the difference when it counts. While many space capabilities have become “normalized” and occur in the background, they are by no means stagnant, but remain vitally important to the Warfighter.

Space capabilities save lives. I look back at the Vietnam era Soldier and think about the effect current capabilities could have had. The Vietnam Soldier did not have a GPS, he did navigation with a map and protractor; he sometimes got dropped off at the wrong LZ, he sometimes had artillery fall in the wrong place. The Vietnam Soldier did not have robust long-haul communications capable of moving large amounts of voice and data, allowing him to better understand, visualize, describe and direct forces. The Vietnam Soldier did not have advanced missile warning to protect him and give him the notice necessary to save lives. The basic tenets of Warfighting have not changed in the last 30 years – shoot, move, communicate. What has changed is the ability of Space to make these tenets better; to help the Warfighter gain situational awareness through timely terrain and imagery data and friendly force tracking. In this day of “normalized” space, many of the capabilities are taken for granted, but they nevertheless are vital to the Warfighter and his mission. The ground Warfighter doesn’t care how in-flight ballistics affects a Hellfire missile; he cares about it taking out the bunker he’s receiving persistent sniper fire from. Likewise, the Warfighter doesn’t care about the fact that his communications are traveling thousands of miles through space, he just wants them to get through. Space professionals often struggle with the question of whether they are truly having an impact; as a Warfighter who, prior to becoming an FA40, has had to unknowingly use space to accomplish my mission, I say keep up the good fight!”

MAJ Glen R. Hees
G3, Training, Readiness and Exercise Division Chief,
Training and Readiness Branch

Day 1

Monday, 3 August

Focus: Registration and Icebreaker



Day 2

Tuesday, August 4

Focus: Professional Development

TOPICS

Conference Registration at Scitor Facility
Security and Admin Remarks
Space – The Best Job in the Army
Review of Due outs from Last Symposium

Break

Future Warfare Center Support to Army Space
Working Lunch

- Training With Industry
- John Hopkins Programs
- Advanced Civil Schooling: Tiny Scope

Commanding General Comments
Naval Post Graduate School
Air Force Institute of Technology

Break

Army Space Cadre Update
FA40 Initiatives
Open Discussion of Issues and Challenges

PRESENTED BY

Scitor
Scitor Rep
BG Kurt S. Story
COL Scot Cuthbertson

Larry Burger

MAJ Darin Eades/MAJ Mike Belton
Chuck Anderson
MAJ Chris Turner
LTG Kevin T. Campbell
Julia Prendergast/ MAJ Shrank
Lt Col Eric Swenson

Greg Piper
Jerry Pepin
Mike Connolly



Day 3

Wednesday, August 5

Focus: Operations

TOPICS

Conference Registration
Allard Commission Report
1st Space Brigade

Break

OPEN

A Warfighter's Perspective
Working Lunch

- Wideband Global SATCOM
- Wideband SATCOM Operations Center
Modernization Efforts

Joint Functional Component Command - Space
Current Space Support in Theater

Break

Quadrennial Defense Review - Space
Directorate of Combat Development

PRESENTED BY

Scitor
LTG(R) Ed Anderson
COL Jeffrey Farnsworth

COL B. Shannon Davis

Peter Stauffer
MAJ Sean D. Duncan
COL Timothy Coffin
LTC Victoria Miralda

COL Bruce Smith
Terry Nelson



Topics

Day 4

Thursday, August 6

Focus: Capabilities

TOPICS

Conference Registration
National Strategic Space

Break

National Reconnaissance Office
Future Warfare Center (Battle Lab) Update
- Space Force Structure
- Army Campaign of Learning and Warfighter Forums
- Scouts Program

Working Lunch

- Breakout Sessions: Senior Leaders (by invitation)
- All others: 4th Space Company (OOA walk through),
Human Resource Command Move, Space Cadre
Development, Space Professionals and Enablers,
Training Opportunities

Advanced Geospatial Intelligence Node Support to USASMDC
Operationally Responsive Space - Meeting the Needs of FA40s in
the Field

Break

Mobile User Objective System Program Update
Joint Navigation Warfare Center – PNT Threat/Operations
Headquarters Department of Army - Space Force Structure

PRESENTED BY

Scitor
Peter B. Teets

BG Jeffrey Horne
Dave Carrithers

Brad Baehr

COL James Meisinger
MAJ Ed Anderson
Jerry Pepin
Larry Mize

Brian Plaisted
Kirk Foeller

MAJ Jeffrey Kacala
MAJ Don Brooks
LTC Shelley Volkwein



Day 5

Friday, August 7

Focus: Cyber

TOPICS

Conference Registration
DCG Comments
Cyber Mission Area

Break

Cyber Discussion
Symposium review
Closing Remarks

PRESENTED BY

Scitor
BG Kurt S. Story
Jeff Harley

TBD (FWC)
Mike Connolly
COL Scot Cuthbertson





Commanding General

LTG Kevin T. Campbell

U.S. ARMY SPACE AND MISSILE DEFENSE COMMAND/ARMY FORCES STRATEGIC COMMAND; COMMANDER, JOINT FUNCTIONAL COMPONENT COMMAND - INTEGRATED MISSILE DEFENSE



LTG Kevin T. Campbell graduated from Worcester State College in 1973 with a bachelor's of science degree. He received his commission into the Air Defense Artillery branch that same year. In 1982, he earned a master's degree in personnel management from the University of New Hampshire. His military education includes the Air Defense Artillery Officer Basic and Advanced Courses, the Nike-Hercules Officer Course, Ranger and Airborne Schools, the Army Command and General Staff College, and the Naval War College.

Campbell's previous assignments include: Chief of Staff, United States Strategic Command, Offutt Air Force Base, Neb.; Director of Plans, United States Space Command; Deputy Commanding General, United States Army Air Defense Artillery Center and Fort Bliss, Texas; Commanding General, 32nd Army Air and Missile Defense Command (AAMDC), Fort Bliss, Texas; Assistant Deputy Chief of Staff for Combat Developments, United States Army Training and Doctrine Command, Fort Monroe, Va.; Commander, 94th Air Defense Artillery Brigade, Darmstadt, Germany; Political-Military Planner (Eastern Europe/Bosnia), J5, the Joint Staff, Washington, D.C.; G3, 32nd AADC, Darmstadt, Germany; Commander, 2nd Battalion (PATRIOT), 43rd Air Defense Artillery, Hanau, Germany; Executive Officer 3rd Battalion (PATRIOT), 43rd Air Defense Artillery, Fort Bliss, Texas; Chief, Unit Training Division, Directorate of Training and Doctrine, Fort Bliss, Texas; ROTC Instructor, University of New Hampshire; Adjutant, 1st Battalion (HAWK), 2nd Air Defense Artillery, Korea; Assistant Operations Officer, 38th Air Defense Artillery Brigade, Korea; Commander, Nike Hercules Battery, Homestead, Fla., and Fort Bliss, Texas; and Artillery Team Commander, Datteln, Germany.

Campbell's decorations and awards include the Defense Superior Service Medal (with Oak Leaf Cluster), Legion of Merit (with Oak Leaf Cluster), Bronze Star, Defense Meritorious Service Medal, Meritorious Service Medal (with two Oak Leaf Clusters), Army Commendation Medal (with two Oak Leaf Clusters), Army Achievement Medal (with two Oak Leaf Clusters), Southwest Asia Service Medal (with three Bronze Stars), Kuwait Liberation Medal, Ranger Tab, and Parachutist Badge.

Deputy Commanding General for Operations

BG Kurt S. Story

U.S. ARMY SPACE AND MISSILE DEFENSE COMMAND/
ARMY FORCES STRATEGIC COMMAND

BG Kurt S. Story assumed duties as the Deputy Commanding General for Operations, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command on 23 July 2008. His last assignment was as Director of Operations (J3), Joint Forces Component Command - Space, Vandenberg Air Force Base, Calif.

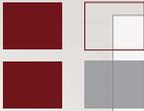
Story received an Associate's Degree from New Mexico Military Institute in 1978 and was designated a Distinguished Military Graduate. In 1980 he received his Bachelor's Degree in Psychology from Mercer University and was commissioned a Second Lieutenant in the Infantry Branch. He later earned a Master of Arts degree in Space Systems Management from Webster University.

Story's military education includes the Command and General Staff College, Armed Forces Staff College, and a Senior Service College Fellowship.

His assignments include Rifle Platoon Leader, Scout Platoon Leader and Executive Officer, 3rd Infantry Division; Executive Officer and Operations Officer, 200th Aviation Company; Commander, N and R Troops, 4th Squadron, 11th Armored Cavalry Regiment; Deputy Commander, Space Defense Operations Center, J-3, U.S. Space Command; S-3 and Executive Officer, 2nd Squadron, 17th Cavalry, 101st Airborne Division (AASLT); Professor of Military Science, University of Colorado - Colorado Springs; Commander, 4th Squadron, 2nd Armored Cavalry Regiment; G-3 Aviation Officer, III Corps; Chief of Staff, U.S. Army Space Command; G3 Chief of Operations, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command; and Commander, 1st Space Brigade.

Story's awards include the Defense Superior Service Medal, Legion of Merit, Defense Meritorious Service Medal, Meritorious Service Medal (four oak leaf clusters), Army Commendation Medal (four oak leaf clusters), Army Achievement Medal (two oak leaf clusters), Joint Meritorious Unit Award, National Defense Service Medal (one service star), GWOT Service Medal, Army Service Ribbon, Overseas Service Ribbon (2), Expert Infantry Badge, Master Aviation Badge, Master Air Force Space Badge, Pathfinder Badge, Air Assault Badge, Parachutist Badge, and Ranger Tab.





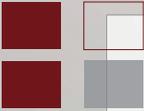
Edward Anderson

Missile Defense Operations, Air Force Space Mission Support and Army Programs
Principal – Booz Allen Hamilton, Inc.

Edward Anderson has extensive experience at strategic planning, organizing and managing complex organizations and currently serves as a Business Leader for three markets— Missile Defense Operations, Army Programs, and Air Force Space Mission Support for Booz Allen Hamilton, Inc. in Colorado Springs, Colo.

Anderson serves as the Chairman of the Missile Defense Agency Senior Advisory Group. He was approved by the Secretary of Defense as a member of the National Security Space Independent Assessment Panel and is a member of the Council on Foreign Relations. He serves on the Board of Directors of the Colorado Springs World Affairs Council, the National Institute of Science, Space and Security Centers, and the University of Colorado at Colorado Springs.

Anderson previously headed the Army staff organization responsible for developing the Army's modernization strategy and funding priorities. He commanded the Army Space and Missile Defense Command; and served as Director for Strategic Plans and Policy, Joint Staff. He was the Deputy Commander, United States Space Command, and Vice Commander, U.S. Element, North American Aerospace Defense Command; and Deputy Commander, United States Northern Command, the first and only Department of Defense joint organization totally dedicated to homeland defense and homeland security. Anderson retired from the United States Army on July 31, 2004 as a Lieutenant General.



Laurence H. Burger

Director, Space and Missile Defense Future Warfare Center
U.S. Army Space and Missile Defense Command/ Army Forces Strategic Command

Laurence (Larry) H. Burger, appointed to the Senior Executive Service in 1997, serves as the director of the U.S. Army Space and Missile Defense Command's Future Warfare Center. In this position, he outlines general program policy to support the Future Warfare Center's primary roles in bringing Space and missile defense capabilities and concepts to the warfighter. Included in the Future Warfare Center are the Space and Missile Defense Battle Lab, the Directorate for Combat Development and the Decision Support Directorate.

Burger previously served as Director, Simulations Directorate, Missile Defense Battle Integration Center, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, Redstone Arsenal, Ala.; Acting Director, Systems Directorate, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, Redstone Arsenal, Ala.; Chief, Airborne Surveillance Testbed Office, U.S. Army Space and Strategic Defense Command, Huntsville, Ala.; Airborne Surveillance Testbed Office, U.S. Army Space and Strategic Defense Command, Huntsville, Ala.; Airborne Optical Adjunct Project Office, Ballistic Missile Defense Systems Command, Huntsville, Ala.; and Chemical Engineer, Exxon Chemical Plant, Baton Rouge, La.

Burger earned a Bachelor of Science degree in Chemical Engineering from Auburn University, Auburn Ala., in 1980, and took part in the Developmental Training Assignment, Office of Secretary of Defense, Washington, D.C., from 1989-1990. He is a certified Level III Systems Engineer in Acquisition Corps. Burger received the Presidential Rank Award - Meritorious Executive in 2003, the Army Achievement Medal and the Air, Space, and Missile Defense Association Professional of the Year. He is a member of the Association of the U.S. Army, the Air, Space and Missile Defense Association and the National Defense Industrial Association

COL B. Shannon Davis

Deputy Senior Commander and Chief of Staff, Fort Carson, Colo.

COL Brooks Shannon Davis is currently in transition after serving two years as the Deputy Senior Commander and Chief of Staff, Fort Carson, Colo., where he deployed to Operation Iraqi Freedom, Baghdad, Iraq serving as Chief, Baghdad Operations Command Advisor Team for Multi National CORPS Iraq.

Davis was commissioned Field Artillery from Eastern New Mexico University in 1976. He then served in the U.S. Army Reserve until entering active duty in 1981, attending the Field Artillery Advanced Course and the Initial Entry Rotary-Wing Aviator Course with OH-58 Aero Scout and AH-1F Cobra transitions.

In 1983 Colonel Davis was assigned to the 1st Armored Division, Illeshiem, Germany, where he served as Attack Helicopter Platoon Leader. He attended the Combined Arms and Services Staff School, Fort Leavenworth, Kan., and was then assigned as Assistant Division Aviation Officer, 1st AD, Ansbach, Germany. His next served with 2nd Armored Cavalry Regiment as Air Cavalry Troop Commander and in 1987 returned to Fort Rucker, Ala., serving as AH-1F and AH-64 Platoon Leader and Instructor Pilot, and 1-14th Aviation Battalion Executive Officer. In 1991 he assessed for the 160th Special Operations Aviation Regiment, Fort Campbell, Ky., where he commanded the AH-6 Light Attack Helicopter Company, 1st Battalion, 160th SOAR. In 1993 he attended the U.S. Army Command and General Staff College and was assigned to the 1st Cavalry Division, Fort Hood, Texas, where he served as S3, 1-227th Attack Helicopter Battalion and Brigade Executive Officer, 4th Aviation Brigade. Davis then completed a Joint assignment as Chief, Special Technical Operations Branch, J3, USCINCPAC, Camp Smith, Hawaii. He then commanded 4/3 Regimental Aviation Squadron, 3rd Armored Cavalry Regiment, Fort Carson, Colo., and deployed the Squadron to Bosnia for SFOR 7. In 2001 he attended the Air War College at Maxwell Air Force Base, Ala. He then served as the Senior Aviation Trainer at the Joint Readiness Training Center, Fort Polk, La., and as the Deputy Commander of Operations Group, JRTC. Davis commanded the 25th Aviation Brigade, 25th Infantry Division, Schofield Barracks, Hawaii and Joint Task Force Wings during Operation Enduring Freedom V in Afghanistan. Upon completion of brigade command he served as Chief of Staff, 7th Infantry Division, Fort Carson, Chief of Staff, III Armored Corps, Fort Carson, and Deputy Commander and Chief of Staff, 4th Infantry Division, Fort Carson, Colo.

Davis holds a bachelors degree in Business Administration from Eastern New Mexico University, a Masters in Aeronautical Science and Aviation Operations from Embry Riddle Aeronautical University, and a Masters in Strategic Studies from the Air War College. His awards and badges include the Legion of Merit, Bronze Star Medal with Oak Leaf Cluster, the Defense Meritorious Service Medal, Meritorious Service Medal with Silver Oak Leaf Cluster, Air Medal with numeral two, Army Commendation Medal with two Oak Leaf Clusters, Army Achievement Medal with Oak Leaf Cluster, Afghanistan Campaign Medal, Iraqi Campaign Medal, NATO Medal, Combat Action Badge, Master Army Aviator Badge, and the Army Parachutist Badge.

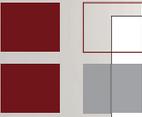
Steve Ferrell

Senior Consultant
Scitor Corporation Defense Services Sector

Steve Ferrell provides full time support to the Scitor Corporation's Defense Services Sector in Colorado Springs, Colo. He provides management and consulting service support for Scitor customers including U.S. Strategic Command, U.S. Northern Command, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command and subordinate units. He joined Scitor in August 2003 following his retirement as an Army Brigadier General after 29 years of service.

Ferrell served in a wide range of operational and staff positions including combat arms, joint and multinational assignments. His varied assignments included air defense, aviation, operations research, operational testing, and Space planning and architecture development. He began his career in 1974 as an air defense platoon leader at Fort Carson, Colo., and culminated his service as the fourth National Security Space Architect, responsible to the Under Secretary of the Air Force and Director, National Reconnaissance Office for developing future, integrated architectures that satisfy Department of Defense and Intelligence community needs.

Ferrell graduated from Baker University (Kan.) in 1974, with a Bachelor of Science degree and was commissioned through the University of Kansas Reserve Officer Training Corps program. He holds a Master of Science degree from Kansas State University in industrial engineering and operations research. His military education includes the Command and General Staff College and the Army War College.



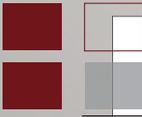
BG Jeffrey C. Horne

Deputy Commander
Joint Functional Component Command for Space

BG Jeffrey C. Horne is the Deputy Commander for Joint Functional Component Command for Space, U.S. Strategic Command, Vandenberg Air Force Base, Calif. He is also the Deputy Director for Mission Support, National Reconnaissance Office.

His previous assignment was as Special Assistant to the Commanding General, United States Army Space and Missile Defense Command. As Deputy Commander JFCC-SPACE, he helps lead all Department of Defense Space Forces aligned with U.S. Strategic Command and provides tailored, responsive, local and global effects in support of National, U.S. Strategic Command, and Combatant Commander objectives. As Deputy Director for Mission Support he is responsible for understanding user needs to coordinate, integrate, and deliver National Reconnaissance Office-wide, responsive solutions. Deputy Director for Mission Support also manages the National Reconnaissance Office Operations Center, and, in collaboration with U.S. Strategic Command, provides space situational awareness and supports defense space control and space protection.

BG Horne entered the United States Army through the Reserve Officer Training Corps program. He attended Ohio State University where he received a degree in business Administration. He received an MS in Information Systems Management from the United States Naval Postgraduate School and an MSST in Security and Strategic Studies from the United States Army War College. General Horne entered on duty in 1980 as a Vulcan Platoon Leader at Fort Bragg, N.C. He has served in various security systems analysis, technical management, leadership, and staff positions during his career.



Peter B. Teets

Former Undersecretary of the Air Force;
Former Director, National Reconnaissance Office

Peter B. Teets served as Undersecretary of the Air Force and Director of the National Reconnaissance Office from December 2001 through March 2005. As Undersecretary, he was responsible for all actions of the Air Force on behalf of the Secretary of the Air Force and was acting secretary in the secretary's absence. He oversaw recruiting, training, and equipping more than 710,000 people and managed a budget of approximately \$110 billion. As the Director of the National Reconnaissance Office, Teets was responsible for the acquisition and operation of all U.S. Space-based reconnaissance and intelligence systems. Designated the Department of Defense Executive Agent for Space, Teets developed, coordinated and integrated plans and programs for Space systems.

Teets is the retired President and Chief Operating Officer of Lockheed Martin Corporation, a position he held from 1997 through 1999. He began his career with Martin Marietta, Denver, Colo., in 1963, as an engineer in flight control analysis. In 1970 he began managing the integration of a new inertial guidance system for the Titan IIIC launch vehicle. After serving in various management positions, Teets became President of Martin Marietta Denver Aerospace, and in 1993, President of the company's Space Group. After the Lockheed Martin merger in 1995 and until 1997, Teets served as President and Chief Operating Officer of the company's Information and Services Sector. Teets holds a bachelor's degree in applied mathematics from the University of Colorado, Boulder, a master's degree in applied mathematics from the University of Colorado, Denver, a master's degree in management from Massachusetts Institute of Technology, and an honorary doctorate of science from the University of Colorado.

LTG Kevin T. Campbell addresses Army Space Operations officers during the 2008 FA40 Symposium in Colorado Springs, Colo.



The following pages contain brief biographies of each of the symposium presenters, as well as executive summaries of the topics they will be discussing.



Charles Anderson

Charles "Chuck" Anderson is a member of the Principal Professional Staff, at The Johns Hopkins University Applied Physics Laboratory. He is a retired Army major, a former FA40, and section supervisor of the Systems Concepts and Applications section of the Defense Analyses and Applications Group National Security Space Business Area. Additionally, he is the manager of the Applied Physics Laboratory FA40 Training with Industry program and recently established U.S. Army Space and Missile Defense Command Indefinite Duration, Indefinite Quantity contract.

Johns Hopkins Program

Applied Physics Laboratory is a University Affiliated Research Center focused on providing core engineering and science capabilities across a broad spectrum of critical Department of Defense mission areas.

The Laboratory currently partners with the Functional Area 40 (FA40) Personnel Proponent Office in providing a unique Training with Industry opportunity to FA40 Space Professionals, allowing them to work with leading science and engineering experts, in areas directly related to Army Space and Missile Defense missions. Recently the Laboratory and U.S. Army Space and Missile Defense Command/Army Forces Strategic Command expanded their formal relationship by establishing an Indefinite Duration Indefinite Quantity contract between the two organizations, thereby establishing the Laboratory as one of USASMDC/ARSTRAT's University Affiliated Research Centers.

The presentation provides insight into Laboratory's current activities directly supporting USASMDC/ARSTRAT, via the new IDIQ relationship, with a focus on understanding how this new partnership benefits the FA40 community. Highlights include the Laboratory's work on USASMDC Battle Lab's Joint Space Tactical Planning Tool, Defense Satellite Communication System and Wideband Global SATCOM Operations Centers, Federally Funded Research and Development Center and University Affiliated Research Center Consortium support to the Operationally Responsive Space office and future efforts centered on cyber, Space protection, Space control, and GPS.

Brad Baehr

Brad Baehr, currently works in the Army Space and Missile Defense Battle Lab. A former U.S. Army Field Artillery Lieutenant Colonel, he was a 3Y and FA40. Upon retirement in 2003 he became Mantech International's Executive Director for Space Systems before taking his current position.

Scouts Space Cadre Portal

The Joint Tactical Ground Station/Overhead Persistent Non-Imaging Infrared experiment focused on net-centricity and explored the ability to bring Partially Processed Overhead Persistent Non-Imaging Infrared Data from a sensor then via SIPRNet to widely distributed warfighters using a simple internet browser. This exciting capability was successfully demonstrated through live events and in exercises Keen Edge 09, Terminal Fury 09, and the U.S. and NATO Coalition Warrior Interoperability Demonstration 09.

Scout Space Cadre Portal

The Space and Missile Defense Battle Lab has a unique capability called Scouts. This program consists of a small group of highly qualified individuals with the mission to analyze Army Space, missile defense, high-altitude, information and cyber operations gaps and shortfalls and then assist in the discovery of relevant concepts and solutions. The Scouts Space Cadre Portal is the next step toward providing the Army Space cadre and various Communities of Interest a means to input, share, and collaborate on their ideas, concepts, needs and solutions.



MAJ Mike Belton

MAJ Mike Belton is currently doing Training with Industry assignment with the Applied Physics Laboratory at Johns Hopkins University in Laurel, Md. His previous assignments include the Directorate of Combat Development and the Space and Missile Defense Battle Lab in Huntsville, Ala. His next assignment will be working in the A5RS on the Air Staff in the Pentagon.

Training With Industry

The Training with Industry assignment at the Applied Physics Laboratory at Johns Hopkins University is a great professional development opportunity to receive advanced training while serving. This training opportunity focus was on serving the needs of the warfighter and looking for innovative solutions that can be integrated in the Department of Defense. Certainly, there are opportunities to continue personal educational goals, but there is also a need for valuable military expertise that the Space Operations Officer can serve in multiple roles while gaining the most of the training opportunity. This assignment offers a wide range of mission areas to develop a training and service portfolio. There are opportunities in both civilian and military Space programs. Some of the opportunities include Air and Missile Defense, National Security Space, Civilian Space, Science and Technology, Precision Engagement, Strategic Systems, Homeland Protection, Biomedicine, Undersea Warfare, Warfare Analysis, and Infocentric Operations.

The primary areas of my assignment were focused on Counter-IED, Operationally Responsive Space, and COPOPS development for Satellite Ground Station development. Each officer assigned to the Applied Physics Lab will have the opportunity to tailor their portfolio to serve in a capacity that interests them. This opportunity is very challenging to try to integrate with Applied Physics Lab's greatest minds, to tackle the hardest problem sets, and address our nation's future capability needs. This briefing will discuss these related programs and the overall opportunities that an FA40 can take advantage of if assigned to this Training with Industry assignment.



MAJ Don Brooks

MAJ Don Brooks is currently assigned as a Team Chief in the Warfighter Support Division at the Joint Navigation Warfare Center, Kirtland Air Force Base, N.M. His previous assignments include Battery Command and Battalion S3 at 1-41 FA Battalion (M109A6), 3d Infantry Division, Fort Stewart, Ga.

Joint Navigation Warfare Center

The Joint Navigation Warfare Center mission is to integrate Navigation Warfare across the Department of Defense and to operationalize it for the warfighter. Collateral missions include a core interagency framework to coordinate, conduct, and report on Navigation Warfare testing and integration; identify and develop mitigation strategies and tactics, techniques and procedures for position, navigation and timing based vulnerabilities. Additionally, the center conducts Navigation Warfare field tests of U.S. and coalition systems and equipment and develops Navigation Warfare Electronic Attack, Electronic Warfare Support and Electronic Protection technology prototypes; and advises decision-makers on significant Navigation Warfare issues.

The JNWC Warfighter Support Team's main effort in accordance with U.S. Strategic Command OPDIR 08-003 is to provide warfighter support to Combatant Commands on Navigation Warfare issues, capabilities and vulnerabilities of equipment and missions. The Center also assists the warfighter in developing effective Navigation Warfare tactics, techniques and procedures and mitigations to maintain and/or regain mission effectiveness against current NAVWAR threats. Additionally, the Center solicits warfighter input to test events and functions as a Navigation Warfare consultant to warfighters in operational planning and issue resolution.

As the Space-based portion of GPS becomes a taskable, offensive and defensive weapon system in support of operations, it is essential for the JNWC to carry the Navigation Warfare concept forward to the warfighter.



Dave Carrithers

Dave Carrithers was assigned to the U.S. Army Space and Missile Defense Command Future Warfare Center on May 20, 2002. He currently serves as the Deputy Director, Space and Missile Defense Battle Lab, Chief Concepts and Architecture Division Space and Missile Defense Battle Lab and also as the Space and Missile Defense Division Chief to the Army Capabilities Integration Center at Fort Monroe, Va.

Future Warfare Center Battle Lab

The U.S. Army is currently engaged in the update of the Army's Capstone Concept approved in 2005. This update is required due to lessons learned in past concepts and the Chief of Staff Army's direction to define The Army of the 21st Century: A Balanced Army for a Balanced Strategy. The new Army Capstone Concept: The Army in Unified Action will enable U.S. Army Space and Missile Defense Command/Army Forces Strategic Command to define the Space and missile defense capabilities required to support this new concept. The Space and Missile Defense Battle Lab is a member of the writing team for this Capstone Concept and has conducted several key wargaming seminars that have contributed to its development. Several events are also planned for Fiscal year 2010 that will support the Army Unified Quest Seminar Wargame. Space Support Elements are a critical part of the Army Service Components, Corps and Divisions. The SMD Battle Lab has participated in critical design reviews of each of these organizations during the past year to ensure this capability was retained in each structure. The SMD Battle Lab also is supporting several Joint Capability Technology Demonstrations that will provide the critical capability to the Army to reduce its reliance on Space, and enhance the communications and intelligence, surveillance and reconnaissance networks. The High Altitude-Enabled assessment was conducted by the Space and Missile Defense Battle Lab and approved by the Senior Army Space Council in July 2009. Key efforts to enhance Joint Friendly Force Tracking and Missile Defense Early Warning have also been successful this year. Finally, the Space and Missile Defense Battle Lab has initiated a Space Warfighting Forum Web site to increase dialogue with Space elements in the field so that requests for support and capability can be addressed across the Army.



MAJ Sean D. Duncan

MAJ Sean D. Duncan is an FA40 assigned to G3 Operations Directorate, USASMD/ARSTRAT. A prior service Noncommissioned Officer, his most recent assignment was Director of Plans, Training, Mobilization and Security, and Headquarters and Headquarters Company Commander for U.S. Army Garrison Livorno, Pisa, Italy. MAJ Duncan's undergraduate degree is in Geography (emphasis in Remote Sensing, Satellite Photo Interpretation, and GIS) from Oregon State University, and he is currently pursuing a Masters in Space Systems Operations (Acquisitions) from Webster University.

WSOC Modernization

Through fiscal year 2014, four Wideband Satellite Communications Operations Centers are undergoing modernization. Delta Company, in particular, is also moving from California to Hawaii into a new Wideband Satellite Communications Operation Center facility currently under construction. This move, in conjunction with the new facility, will greatly enhance U.S. Army Space and Missile Defense Command/Army Forces Strategic Command's capability to effectively manage communications capabilities. Satellite control infrastructure continuously operates near maximum capacity; no one Wideband Satellite Communication Operations Center can be out of service for an extended period of time. Therefore, key to the modernization plan is the delicate balance of issues to maintain uninterrupted operations while simultaneously taking care of Soldiers and Families.



MAJ Darin Eades

MAJ Darin Eades is currently at Lockheed Martin on a Training with Industry assignment. Previously he served on the first Army Level Space Support Element at U.S. Army Central at Fort McPherson, Ga., and Kuwait. He will be assigned to the U.S. Training and Doctrine Command Capability Manager for Satellite and Network Extension at Fort Gordon, Ga.

Training With Industry

Training with Industry at Lockheed Martin provides a unique opportunity to see and participate in the industrial world while still serving on active duty. The advantage of this is that, while much of the contractor world understands the way the military works (normally by having been there) not that many military members know how the contractor world works. Exposure to how industry fits into the Joint Capabilities Integration Development System process can lead the Army and Army Space in particular to make better, more definable requirements that can result in viable solutions that answer the real needs of the end user.

Lockheed Martin in the Denver and Colorado Springs area works in the Defense, Intelligence, and Civil lines of business areas of the greater Lockheed Martin Corporation. I have worked on developmental and Operations and Maintenance contracts as well as on a proposal team responding to a government Request for Proposals (a.k.a. government acquisitions.)

One of the greatest benefits to Lockheed Martin and its employees has been their day-to-day interaction with me and the real world knowledge I brought to their programs. Countless times I've been asked how a certain piece of information or a product is really used out there in the world and my responses have been used to make products or processes better. Having me "embedded" inside the company wearing their uniform (khakis, collared shirts, and an LM badge) has removed the perception of me being "the customer" and has allowed for more candid and open conversations.



COL Jeffrey Farnsworth

COL Jeffrey Farnsworth assumed command of the 1st Space Brigade, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command on July 10, 2008. In this position he is responsible for the supervision of three one-of-a-kind battalions with forces forward deployed at 14 locations in seven countries — the 53rd Signal Battalion (SATCON), the 1st Space Battalion and the 117th (Colorado Army National Guard) Space Support Battalion — providing day-to-day Space support to strategic, operational and tactical forces.

1st Space Brigade

The Army's only Space Brigade provides forces and conducts operations that bridge across the Strategic, Operational and Tactical levels. This requires a different paradigm than is typically thought of for a Brigade in order to effectively organize, train, equip, and employ the Brigade's forces. There are a number of initiatives that the entire Space community will benefit from that we will cover at the symposium. These include efforts to enhance planning and integration with Army level Space Support Elements, ensuring Space Support Teams come fully enabled with the latest expertise and special access skills to fully support traditional Space functions and special activities. The Brigade has implemented its own version of the Army Force Generation and Reset models to sustain a maximum level of deployable Space forces for a given theater. We are also breaking new ground with the latest in tactics, techniques, procedures and integration of new capabilities to enhance Space situational awareness, interference characterization and geolocation, ways to provide more commercial imagery faster, and techniques to optimize the Wideband Global System to enable Space forces. We are integrating more and more officers with Space Support Element experience into the Brigade and this is a boon to our culture and capabilities. We are also ensuring those with Brigade experience get out into the rest of the force with their follow on assignments as soon as they are eligible. Finally, we are examining alternative employment concepts for Space forces and supporting experiments that will bring much needed operational enhancements to the Space Professional's portfolio. We welcome any insights from the field and look forward to an informative and productive dialogue at this year's symposium.

Kirk C. Foeller

Kirk C. Foeller is the Future Warfare Center's lead for Operationally Responsive Space processes. He was member of the Department of Defense planning group that developed the plan for establishing the Joint Operationally Responsive Space Office. He was one of the original Army Space Support Team (ARSST) members and one of the Army's first FA40s. Foeller also has extensive experience in special operations and was initially branched in the Corps of Engineers.

Operationally Responsive Space

Operationally Responsive Space is a Department of Defense program focused on rapid improvements for Space support to the Warfighter. Based upon three "tiers," Operationally Responsive Space will quickly ascertain Warfighter urgent Space needs and field workable solutions. In concert with the Joint program, the Future Warfare Center is focusing efforts on Tier I needs — solutions in a matter of days and weeks. Using the Doctrine, Organizations, Training, Leader Development, Materiel, Personnel and Facilities framework, Future Warfare Center is proposing a "hotline" for Space professionals to address urgent Space needs that require rapid resolution. Based upon U.S. Special Operations Command's rapid acquisition processes, Future Warfare Center will address urgent Space needs and develop workable solutions to those needs or if necessary, coordinate with other Operationally Responsive Space-supporting agencies for solutions. The proposed Future Warfare Center process will ensure Army Tier I Space needs are aggressively managed and resolved and that the supported Space professional has feedback on the status of their urgent need.



MAJ Jeffery C. Kacala

MAJ Jeff Kacala is an FA40 Advanced Civil Schooling graduate from the Naval Postgraduate School and is currently serving with the Mobile User Objective System Program Office in San Diego, Calif. He has a Bachelor of Science degree in Electrical Engineering from the U.S. Military Academy, a Master of Science degree in Information Technology from University of Maryland, University College, and a Master of Science Degree in Space Systems Operations from the Naval Postgraduate School. He was commissioned as a Signal Officer in 1998 and has since become an FA40 Officer.

Mobile User Objective System Program

The Mobile User Objective System is the Department of Defense's next generation Ultra-high Frequency Satellite Communications system. The Mobile User Objective System development includes not only design and on-orbit placement of satellites, but development and fielding of an integrated system that includes the System ground sites and the System common air interface. The Mobile User Objective System Program Overview Briefing gives the latest status on the health and availability of legacy Ultra-high Frequency Satellite Communications constellations and a projection of their availability in the future. With that as a starting point, the briefing then moves to the Mobile User Objective System program with a look at the requirements, architecture, status, schedule and terminals. The architecture is based on current 3G cellular telephone technology. As such, Mobile User Objective System users will be able to make point-to-point calls and access the Global Information Grid as current 3G cell phones can today. The briefing will explain these and other benefits to the warfighter and give production updates on the spacecraft, ground sites and waveform.



LTC Mike McKay

LTC Mike McKay is currently assigned as the Chief of the Space Support and Enhancement Division within the Joint Functional Component Command - SPACE Operations Directorate (J3) at Vandenberg Air Force Base, Calif. For the past two years he has worked in the Space Control Division. His previous assignments include 4th Infantry Division Space Support Element Space Operations Officer, U.S. Military Academy Mechanical Engineering Instructor, 1st Armored Division G3 Air, and Aviation (OH-58D) Calvary Troop Commander.

JFCC-SPACE

This presentation provides a brief review of Joint Functional Component Command-SPACE (JFCC-SPACE) mission and organization, and focuses on changes and future developments and will highlight how this joint assignment can provide some unique opportunities. FA40 assignments within the JFCC-SPACE range from current operations in the Joint Space Operations Center to near-term operations in J3 to long-term requirements (six months and out) in J5. There are opportunities to implement systems like the Selective Availability Anti-Spoofing Module and work its transition from Federally Funded Research and Development Center through the force provider (Air Force Space) to JFCC-SPACE and tactical units for operational management. JFCC-SPACE is on the forefront of incorporating new space systems from across the community, to include Integrated Space Situational Awareness, Space command and control enhancements, and RAIDERS Block 20. JFCC-SPACE also implements new processes. For example, U.S. Strategic Command is changing the overall responsibility for Electromagnetic Imaging resolution from Joint Task Force – Global Network Operations to JFCC-SPACE. JFCC-SPACE deals with burning Congressional/National issues like Collision Avoidance and Commercial and Foreign Entities Space Situational Awareness support/services. For U.S. Strategic Command, JFCC-SPACE will inherit a Commercial and Foreign Entities operational program from the Air Force Space pilot program. JFCC-SPACE provides FA40s many unique challenges working with Department of Defense/ Interagency/ Allied/ and commercial partners which enhance the more traditional FA40 operational experience.



LTC Victoria Miralda

LTC Victoria Miralda has served as the U.S. Central Command Deputy Director of Space Forces since November, 2008. She is a 1990 graduate of the United States Military Academy and was commissioned into the Signal Corps, holds a M.S. in Telecommunications from the University of Colorado at Boulder, and has completed the Space Operations Officer Qualification Course, the Space Executive Course and Space 300.

Current Space Support in Theater

The U.S. Central Command Space Coordinating Authority is responsible for the appropriate provision of Space support to U.S. and Coalition forces. The operational transition in U.S. Central Command is driving a corresponding need for a “reset” of Space support and capabilities in theater. The changing operational environment requires new technology applications along with innovative tactics, techniques and procedures and unprecedented cross-mission area integration. The Director Space Forces briefing will provide updates on the current theater Space posture, emerging requirements and the plan to meet them.



Jerry Pepin

Jerry Pepin is the Deputy for the FA40 Personnel Development Office, formerly the FA40 Personnel Proponent Office and has been in that position since late 2008. Prior to this, he was a contractor working in U.S. Northern Command/North American Aerospace Defense Command and Cheyenne Mountain as a training manager. He is a retired Air Force Officer with a background in Missiles and Space Operations.

FA40 Initiatives

FA40 Professional Development:

Each year, the Training with Industry program places two FA40 officers in a corporate environment, allowing them to experience the latest technology development processes, industrial operations and organizational structures and cultures.

Advanced Civil Schooling - The FA40 community is allocated six schooling slots per year. Currently, FA40s are at Virginia Tech, Georgia Tech, MIT, Webster University, Naval Post Graduate School and Air Force Institute of Technology.

National Security Space Institute Schools - A 15-day capstone course for Space professional development at the National Security Space Institute in Colorado Springs, Colo. The FA40 PDO currently manages all Army billets to Space 300. In fiscal year 2010, they will take over the management of Space 200 and the Space Fundamentals Courses.

FA40 Initiatives:

In early June 2009, the first FA40 Senior Leader Steering Group meeting was conducted. Here a number of initiatives were presented and direction and concurrence were given on the way ahead.



Greg Piper

Greg Piper is currently the Deputy for the Army Space Cadre Office and has been serving in that position since late 2007. Prior to this he served for four years as the Deputy G1, Military for U.S. Army Space and Missile Defense Command/Army Forces Strategic Command and also served 20 years in the U.S. Army as an Adjutant General Corps Officer including a tour as the Executive Officer of the U.S. Army Space Command from 1997-2001.

Army Space Cadre

The mission of the Army Space Cadre Office is to identify Army Space Cadre members, track positions, personnel and training data and report data and metrics in accordance with Department of Defense directives and guidance. Currently, the Army Space Cadre consists of 296 Space Professional billets (FA40s) and over 2250 Space Enabler billets (1500 Soldiers and 750 Civilians). These billets are across the Active, Reserve and Guard forces. We are currently in the processing of coding the approved Space billets on source documents and developing a Space Cadre tracking system for both Soldiers and Civilians. Recently, Headquarters Department of Army G1 approved our request to rename and expand the 3Y skill identifier for use with all categories of Soldiers. This will allow us an additional method to track Soldiers with space experience. We are also working with other services to develop and implement codes for Department of Defense Civilians with Space experience. Additionally, we are the proponent for the awarding of the 3Y skill identifier and the Air Force Space Badge.



Brian Plaisted

Brian Plaisted is currently the planner for the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command's Advanced Geospatial Intelligence Node at Peterson Air Force Base, Colo., and has been serving in that position since 2002. Prior to this he served 20 years in the U.S. Army as an Engineer Officer including a tour as the chief of the U.S. Army Space Command Remote Sensing Branch from 1994-1998.

AGI Node Support to USASMDC

The U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Advanced Geospatial Intelligence Node has changed in a variety of ways over the last five years. The size of the Node has increased to over 30 personnel and the number of Department of Army Civilians will increase to 16 in 2010. The mission of the Node has expanded to include support for U.S. Northern Command and U.S. Transportation Command as well as its traditional support to USASMDC/ARSTRAT and U.S. Strategic Command. Product types created by the Node have grown from primarily image maps, GIS, and spectral based products to include Synthetic Aperture Radar and thermal products. This will further increase in fiscal year 2010 with the stand up of an Overhead Persistent Infrared cell to support ground forces. But a number of things have not changed. One is the emphasis on providing support to the warfighter. Today that support is provided not only through 1st Space Brigade elements, but also through federated requests received from the 513th Advanced Geospatial Intelligence Node that supports the U.S. Central Command Area of Operations. Another is the Node's emphasis on exploration activities. This includes assessing the utility of commercial radar satellites for military applications and involvement in the TacSat-3 program, exploiting the hyperspectral sensor on board the satellite and providing support to the Space and Missile Defense Battle Lab on the assessment of the tactical utility of the system.



Jules Prendergast

Jules Prendergast is the Strategy and Development Director for the Naval Postgraduate School (NPS) Remote Sensing Center. As the Education Manager for the interdisciplinary Master of Science in Remote Sensing at the NPS, she has worked extensively with components of the National Geospatial-Intelligence Agency Technical Executive and the Director of the NGA College to help develop an intelligence community focused graduate degree program in science and technical education through the National Security Institute, NPS and another government intelligence agency. She is also the NPS Deputy Director of Outreach-National Capital Region.

Naval Postgraduate School

There are a variety of opportunities for Space related Degree opportunities at the Naval Postgraduate School. These include a Master of Science in Remote Sensing Intelligence, a Master of Science in Space Systems Operations, and the Space Systems Engineering Program which can lead to a Master of Science in Astronautical Engineering, Electrical or Computer Engineering, Physics, Mechanical Engineering, or Computer Science. Remote Sensing encompasses a variety of technologies to wed multiple scientific and engineering disciplines. Relevant Image Intelligence disciplines incorporated in the Master of Science-Remote Sensing Intelligence include Space Systems, Mathematics, Physics, Information Sciences, Computer Sciences, Operational Sciences, and National Security (Intelligence) Studies. The Space Systems Operations curriculum is designed to provide officers with knowledge of military opportunities and applications in space. Students are provided instruction about the operation, tasking and employment of space surveillance, communications, navigation and atmospheric/oceanographic/environmental sensing systems as well as payload design and integration — specifically for the exploitation of Space and Information products. The Space Systems Engineering program provides officers, through graduate education, with a comprehensive scientific and technical knowledge of national security, and military Space systems. This curriculum is designed to equip officers with the theoretical and practical skills required to design and integrate national security and military space payloads with other spacecraft subsystems. Graduates will be prepared by their education to design, develop and manage the acquisition of Space communications, navigation, surveillance, electronic warfare and environmental sensing systems.



COL Bruce Smith

COL Bruce Smith has served as the Director of Combat Development at U.S. Army Space and Missile Defense Command/Army Forces Strategic Command since July 2007. He has a varied background in Space having served on the Army staff in the Space and Missile Defense Division of the Deputy, Chief of Staff for Operations; on the Objective Force Task Force as the Space and Aviation System Integrator; and as a Space operations officer with U.S. Space Command. He is a 1983 graduate of the United States Military Academy and was commissioned as an Armor Officer and later branched into Aviation.

Quadrennial Defense Review Space

Congress has directed the Department of Defense to conduct a Space Posture Review as part of the Quadrennial Defense Review which charts the way ahead for the next 20 years as we confront current and future challenges and continue our transformation for the 21st century. This review is being conducted at a very high level in order to assess if national space capabilities, organizations and policies are sufficient to meet future challenges. In coordination with COL Schantz from DA G3/5/7, I will provide an overview of issues being assessed in the Space Posture Review and outline the Army's concerns.



Peter Stauffer

Peter Stauffer is the SATCOM Division Chief, CIO/G6, U.S. Army Space and Missile Defense Command/ Army Forces Strategic Command. He is responsible for executing U.S. Strategic Command assigned missions to include: SATCOM System Expert for Consolidated Wideband SATCOM, Wideband Global SATCOM, Global Broadcast Service, Mobile User Objective System, and Operational Control of Regional SATCOM Support Centers, and serves as the U.S. Operational Project Manager for the U.S./Australia Wideband Global SATCOM Memorandum of Understanding. Stauffer is a prior Signal Corp Officer and holds an MBA and a BA.

Wideband Global SATCOM

U.S. Army Space and Missile Defense Command/Army Forces Strategic Command has been assigned as the Wideband Global SATCOM System Expert since 1999. SATCOM System Expert duties are outlined in Strategic Forces Instruction 714-02 with a focus on all segments of the Wideband Global SATCOM system - Space, terminal, and management and control. The Wideband Global SATCOM briefing for the Space Cadre Symposium will discuss Wideband SATCOM management, planning, and control responsibilities, Wideband Global SATCOM capabilities and status, and Wideband Global SATCOM-2 activation plan. Wideband Global SATCOM system provides a 10 time increase in capabilities and throughput when compared to the legacy system, Defense Satellite Communications System. Wideband Global SATCOM will provide critical command and control communications to the Joint and Army warfighters through 2025.



LtCol Eric Swenson

LtCol Eric Swenson is an Air Force officer currently serving as an Assistant Professor at the Air Force Institute of Technology at Wright-Patterson Air Force Base, Ohio. He is the Astronautical Engineering Chairman and teaches courses in spacecraft attitude dynamics, vibration, and structural design. His research is focused on design, build, and test of Space structures and experiments.

Air Force Institute of Technology

Graduate Space education at Air Force Institute of Technology consists primarily of three programs: Astronautical Engineering, Space Systems, and Systems Engineering - Space Systems Track. Students, predominantly military officers, can earn either a master's degree or Ph.D. in any of these programs. In the traditional master's program, students enter as a class in September and graduate in 18 months. Currently, AFIT has one Army FA40 officer in our Astronautical Engineering program and another in our Space Systems program. The very first Army student graduate from Air Force Institute of Technology's Astronautical Engineering program completed his master's degree just two years ago.

The Graduate Astronautical Engineering program is dedicated to the engineering fundamentals of design, test, and development of spacecraft, missiles, launch vehicles, and related systems. The Graduate Space Systems program is designed to provide officers with a broad knowledge of Space systems engineering and Space science. Education in the fundamentals of these areas will increase military officers' effectiveness in planning, executing, and evaluating Space systems and operations. The Graduate Systems Engineering - Space Systems Track degree program is focused on educating students on the process by which a customer's needs are satisfied through the conceptualization, design, modeling, testing, implementation, and operation of a working Space system. Students in this program will complete courses in Space physics, surveillance and/or the Space environment, be knowledgeable in the wealth of unclassified and classified Space technologies and systems and apply lessons learned through a sponsored Space-related Capstone project.



MAJ Chris Turner

MAJ Chris Turner is an FA40 Space Operations Officer attending the Naval Postgraduate School. MAJ Turner previously served as an Armor Officer in the 4th Infantry Division and 2nd Armored Cavalry Regiment prior to entering the Space Operations Career Field in 200

Advanced Civil Schooling: TINYSCOPE

As a company commander in a Combined Arms Battalion in Iraq, I was able to observe firsthand a gap in the imagery products that were available for mission analysis and planning. The imagery that is currently available to the typical tactical level commander either consists of days or even weeks old satellite or aerial photos or feeds that come from organic Unmanned Aerial Vehicles. The former provides a firm foundation for initial mission planning and the latter is an excellent way to maintain situational awareness during execution. What is missing is in between, a system that can provide current imagery of a potential target without the risk of detection or commitment of organic assets. The TINYSCOPE program at the Naval Postgraduate School is an attempt to provide a reasonable solution.

TINYSCOPE is a tactical imaging nano-satellite that is being developed by graduate students in the Space Systems curriculum at the school. There are currently three Army FA40s participating in the program to design and build a prototype satellite capable of providing 3m imagery to a tactical user within 30 minutes of a tasking request. The system is being designed utilizing a Cubesat form factor and is expected to be 50cm x 10cm x 10cm, weigh in at under 15kg, and have a per unit cost of approximately \$250,000. The project is currently in the preliminary design phase with an engineering design unit expected to be complete by December 2009 and a flight prototype to follow one year later. The objective of the program is to launch the initial satellite in 2011 to confirm that the system is feasible. A subsequent constellation of 63 satellites would provide near-persistent coverage of the earth and would be available for tasking by tactical echelons using a standard secret internet protocol router connection.



LTC Shelley Volkwein

LTC Shelley Volkwein is currently assigned as the Organizational Integrator for Space and Ground-based Midcourse Defense force structure in the G-37 Force Management Directorate of the Army Staff. Her previous assignments include Space Policy and Doctrine officer assigned to U.S. Strategic Command, Theater Missile Warning Company Commander, National Missile Defense Planner, and Company Commander, Headquarters and Headquarters Company, U.S. Army Space Command.

HQDA Space Force Structure

The Space and Ground-based Midcourse Defense Organizational Integrator integrates and synchronizes force management actions from an operational perspective across the Doctrine, Organization, Training, Material, Leader Development, Personnel and Facilities domains. An Organizational Integrator supports the Army G3 Organizational Requirements Determination and Organizational Integration efforts to review its force structure and force modernization initiatives and its plans to adapt that structure and equipment to meet future doctrine and warfighting requirements. This is accomplished by participation in core force management processes including Total Army Analysis, Force Management Review, Force Design Updates, Force Feasibility Review and Force Validation Committees.

This presentation will provide an overview of the Space and Ground-based Midcourse Defense Organizational Integrator's roles and responsibilities with a focus on the impact of Total Army Analysis 12-17 decisions on current and future Space and Ground-based Midcourse Defense force structure, ongoing Force Design Issues, and other force management initiatives that will impact the Space and Ground-based Midcourse Defense force.

SPACE EDUCATION AT THE UNIVERSITY OF TEXAS AT SAN ANTONIO:

ARMY SPACE CADRE

Learn from Southwest Research Institute Scientists

BY MAJ STACY GODSHALL
U.S. TRAINING AND
DOCTRINE COMMAND

Best professions utilize education to continue to develop the professionals within an organization over the course of the career. The Army adheres to that practice as manifested by Noncommissioned Officer Education System, Officer training from Basic Officer Leader Course to ILE, branch/career field specific training, and the Advanced Civil Schooling program. Working as a Space Professional or a Space Cadre member as a Space Enabler allows Army personnel to be in the Space Profession which follows this developmental paradigm very well.

Continued education in a variety of venues allows for broadening of knowledge in a career field, such as FA40, or in a subset of skills, such as the 3Y Space Activities Skill Identifier. Therefore, continuing education has a significant role in professional development as indicated by Samuel P. Huntington in his book *The Soldier and the State*. Education is one of the distinguishing characteristics of a true profession.¹ The Army Space Profession follows this example very well. Space Cadre members increase their knowledge through many educational venues. Three of these offer great opportunities for development in Space operations.

The first is military Space training such as that found in the Space Operations Officer Qualification Course, in the National Security Space Institute, at the Naval Postgraduate School, and at the Air Force Institute of Technology. Of these, National Security Space Institute offers Web based training and short courses such as the Space Fundamentals and Space Operations Courses as well as Space 100, 200, and 300. All of these, at different phases of an Officer's career, enhance the development of an Army Space Cadre member. Naval Postgraduate School offers graduate degrees in Space Systems Engineering and

“Continued Education in a variety of venues allows for broadening of knowledge in a career field, such as FA40, or in a subset of skills, such as the 3Y Space Activities Skill Identifier.”

Space Systems Operations as well as a Space Systems Graduate Certificate.² These options at Naval Postgraduate School also offer great opportunities to enhance Space cadre professional development. There are also many opportunities for graduate level education and development at civilian institutions, especially in the area of Space science. It is the study of Space science that allows for an in-depth understanding of Space weather and climate. Space weather and climate impact spaced-based assets and our knowledge of this can be used for design purposes.³ These civilian Space science educational opportunities are outstanding options to be able to develop more understanding of Space climate impacts on Military Decision Making Process.

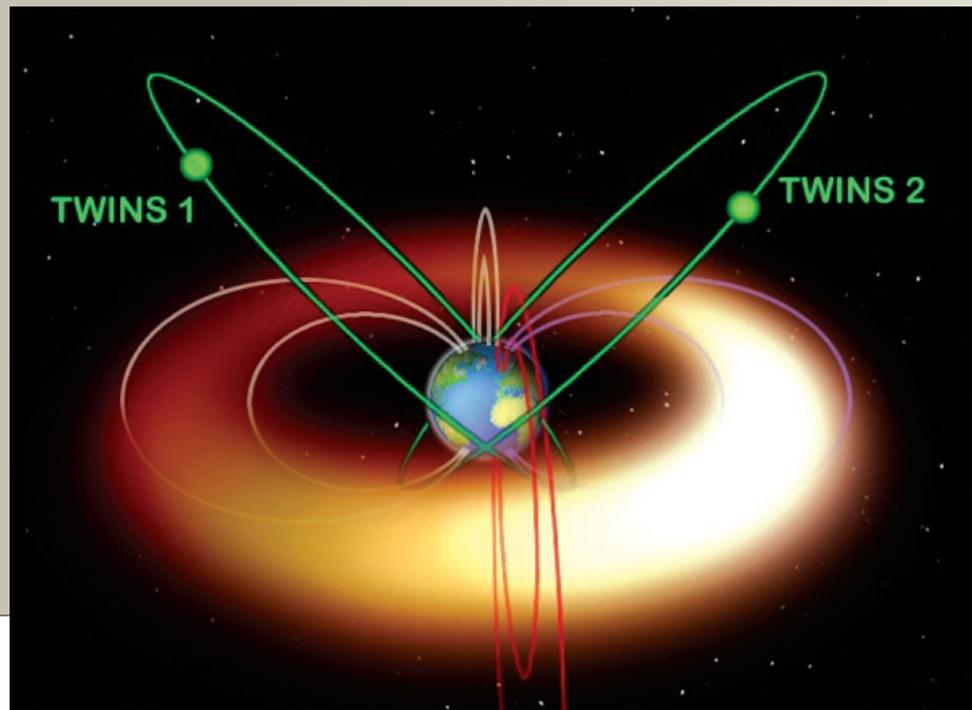
There is a second opportunity to which one could ask the question what if we could send Soldiers to a short civilian course to learn about Space science? What would be the benefit? Sometimes asking “what if” leads to the future.⁴ One such possibility is the Center for Integrated Space Weather Modeling 11 day Summer School on the Boston University Charles River Campus in Boston’s Back Bay. What if a soldier attended this short course? The intent of the course is to give students a comprehensive immersion in the subject of Space weather. It helps a student or a professional to answer the following questions about Space weather: What is it? What does it do? What can be done about it? These aspects of learning about Space weather are covered in many of the military courses that are available through other venues. However, the Center for Integrated Space Weather Modeling course allows for learning through visualization via computer modeling of Space weather under varying conditions which offers a different perspective on the learning. This course offers an additional huge benefit in that there is no fee for the course and thus would only require other Temporary Duty associated costs.⁵ Therefore, one possible scenario would be for a Space Cadre member to attend this course enroute to one of the aforementioned graduate schools, thereby providing a great transition to the science based aspects of Space. Another is to send a Reserve Officer Training Course or U.S. Military Academy cadet to the Center for Integrated Space Weather Modeling summer course to motivate him or her to become future Space Cadre members.

Another possible short training is the International School for Space Simulations (ISSS). The intent of this course is the teaching of Space plasma simulation techniques and for the sharing of results with researchers in plasma physics.” International School for Space Simulations brings together the most recent spacecraft observational results and theoretical advances to address the outstanding problems in Space plasma physics. Lastly, the course provides a view into the different types of Space science simulations and a chance to meet with the simulators who are the experts in the field.⁶

These two examples of short civilian training can be used to introduce Soldiers to Space science and techniques of computer modeling used to analyze Space phenomena. Other, more in-depth opportunities exist in which Soldiers can gain significantly more understanding of Space than through these short courses.

The third venue or opportunity which offers great opportunities for development in Space operations is the ACS program. The ACS program offers many outstanding opportunities for professional growth through continued civilian education. Depending on the goal of the specific academic plan, a Soldier can significantly augment the professional development already provided by military training and schools. A specific example of an ACS program that can increase knowledge of Space is the Masters of Science in Space physics degree program at the University of Texas at San Antonio. This program is offered in collaboration with the scientific staff at Southwest Research Institute a globally premiere institution operating at the scientific forefront in many areas, including Space research. In this program the University has partnered with the Southwest Research Institute to allow for significant student interaction with Institute scientists and missions. This is accomplished by the scientists and physicists at the Institute being adjoint professors who directly teach and mentor the graduate students in current Space science missions. By doing this, the organization is able to offer an in-depth curriculum that includes classes in Fundamentals of Space Physics, Heliospheric Physics, Magnetospheric Physics, Space Weather, Planetary Science, Computational Fluid Dynamics, Plasma Physics and Magnetohydrodynamics, and a

Figure 1
Shows the Two Wide-angle Imaging
Neutral-atom Spectrometers
orbits. Courtesy of Southwest
Research Institute Web site



Space Physics Laboratory class. The Southwest Research Institute adjoint professors also are available as facilitators for independent studies in Orbital Mechanics as well, utilizing Satellite Tool Kit for orbital mechanics simulations and MATLAB for extensive, rigorous mathematical analysis of orbital dynamics problems.

The graduate program at UTSA with the partnership with Southwest Research institute has some advantages for Army Space Cadre. First, the UTSA program utilizes adjoint faculty from the Research Institute with current scientific operational experience to teach all of the Space physics classes mentioned above. Working closely with these Research Institute scientists, students not only learn about current scientific principles and phenomena of Space but also are able to participate in design, testing, deployment, and use of scientific payloads. By being immersed in cutting edge Space science missions, Space Cadre develop new ideas and pose solutions to previous limitations. In doing so, we can “significantly benefit our warriors.”⁷ This benefit to the force, from this perspective, is manifested by the integration of Space science missions and Space climate awareness into the Military Decision-Making Process.⁸ New ideas and unique solutions are what has lead scientists to design, develop, and launch small satellite clusters to obtain more robust, spatially and temporally comprehensive observations of the physical phenomena which occur in Space, and thus lead to the greater awareness needed. This small satellite cluster approach is one that is being explored to benefit Warfighters as well.^{9,10}

There are specific SwRI missions that enhance Space environment awareness and can thus provide information necessary for the Military Decision-Making Process. Of these

missions, six are currently operational and two are in development at this time.

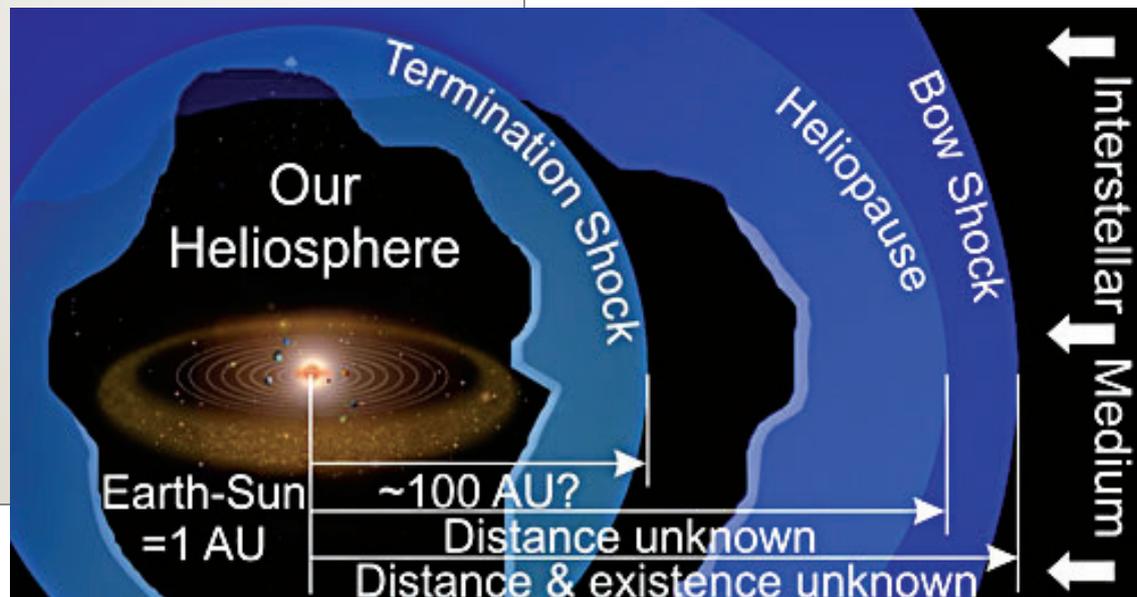
The six operational missions are the Two Wide-angle Imaging Neutral-atom Spectrometers or TWINS, Interstellar Boundary Explorer, New Horizons, Cassini, Juno, and Rosetta.

The Two Wide-angle Imaging Neutral-atom Spectrometers provides a new capability for imaging the magnetosphere. By imaging the charge exchange neutral atoms using two identical instruments on two widely Spaced high-altitude, high-inclination spacecraft, the spectrometer provides 3-dimensional visualization of large scale structures and dynamics within the magnetosphere for the first time.¹¹ (See Figure 1)

The Interstellar Boundary Explorer Spacecraft is a small satellite that observes the Solar System Boundary by collecting energetic neutral atoms. These atoms provide information about the Solar System’s boundary by travelling toward Earth from beyond the orbit of Pluto. This boundary is created by the interaction between the solar wind and the interstellar medium. The solar wind streams out into Space and carves out a protective bubble around the Solar System called the heliosphere.¹² (See Figure 2)

New Horizons was built primarily by Southwest Research Institute and the Johns Hopkins Applied Physics Laboratory. New Horizons mission is to explore the Pluto-Charon system and the Kuiper belt, beginning in 2015. The New Horizons spacecraft executed a fly-by of Jupiter in 2007. The Jupiter fly-by was used to provide a gravitational assist that shaved years off the travel time to Pluto-Charon and the Kuiper belt. Charon is the largest moon of the dwarf planet Pluto. The Kuiper belt

Figure 2
Shows the heliosphere and boundaries. Courtesy
of Southwest Research Institute Web site



is a region of the Solar System beyond the planets extending from the orbit of Neptune and is similar to the asteroid belt, although it is far larger.

Cassini studies the planet Saturn and its moons. The spacecraft consists of two main elements: the National Aeronautics and Space Administration Cassini orbiter and the European Space Agency Huygens probe. The Huygens probe separated from the orbiter and reached Saturn's moon Titan where it made an atmospheric descent to the surface and relayed scientific information. Cassini is the first spacecraft to orbit Saturn and the fourth to visit it.

Juno's mission is to study the planet Jupiter. The spacecraft will be placed in a polar orbit to study the planet's composition, gravity field, magnetic field, and polar magnetosphere. Juno will also study Jupiter's formation process, including the possible existence of a rocky core, the amount of water present within the deep atmosphere, and mass distribution within the planet.

Last of the operational Space missions discussed here, in which SwRI participates, is the European Space Agency Rosetta mission; to the comet 67P/Churyumov-Gerasimenko. Rosetta consists of two main elements: the Rosetta cometary orbiter and the Philae cometary lander. Enroute to its target, the spacecraft will fly by and examine Mars, Earth (twice), and two asteroids.

There are also two Space science spacecraft with associated instruments currently in development at Southwest Research Institute and their partner organizations. These two missions are the Magnetospheric Multiscale mission and the Radiation Belt Storm Probes. These and other missions, not yet selected but in competition or early formulation, provide students in this

program with continual exposure, not only to the elements of Space mission formulation and development, but also the associated scientific data flow and the intellectual deduction processes from which new scientific knowledge is born.

There will be significantly increased understanding of Space weather, climate, and associated impacts on Military Decision-Making Process through Two Wide-angle Imaging Neutral-atom Spectrometers, Magnetospheric Multiscale, and Radiation Belt Storm Probes.

Specifically, as previously eluded to, "TWINS will provide stereo imaging of the Earth's magnetosphere, the region surrounding the planet controlled by its magnetic field and containing the Van Allen radiation belts and other energetic charged particles."¹³ The imaging technique, Energetic Neutral Atoms analysis, is a newly developed approach to remotely observing hot plasma populations. This 3-dimensional visualization will expand our current understanding of overall magnetosphere dynamics. A better understanding of the magnetosphere, especially with variations of solar input to this system, will allow for better modeling, better forecasting, and thus a greater ability to predict impact on the mission.

Magnetospheric Multiscale "will use Earth's magnetosphere as a laboratory to study the microphysics of magnetic reconnection, a fundamental plasma-physical process that converts magnetic energy into heat and the kinetic energy of charged particles."¹⁴ Magnetic reconnection is thought to be the dominant element in many forms of astrophysical energy release, including solar flares and auroral storms on Earth. Increased knowledge of the reconnection process, and thus the mechanism which

“ With this new understanding of the solar cycle effects on the radiation belts, the Earth’s magnetosphere, and magnetic reconnection provided by Radiation Belt Storm Probe, Magnetospheric Multiscale, and Two Wide-angle Imaging Neutral-atom Spectrometers respectively, we will be able to better predict how these fluctuations will affect our military Space based assets, Military Decision-Making Process, and thus our support to the Warfighter.”

Figure 3 shows the Magnetospheric Multisphere spacecraft and magnetic reconnection. Courtesy of Southwest Research Institute Web site

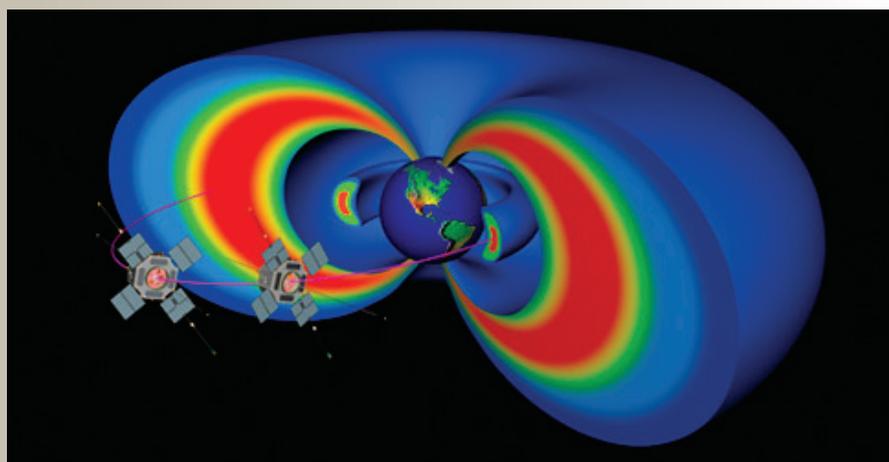
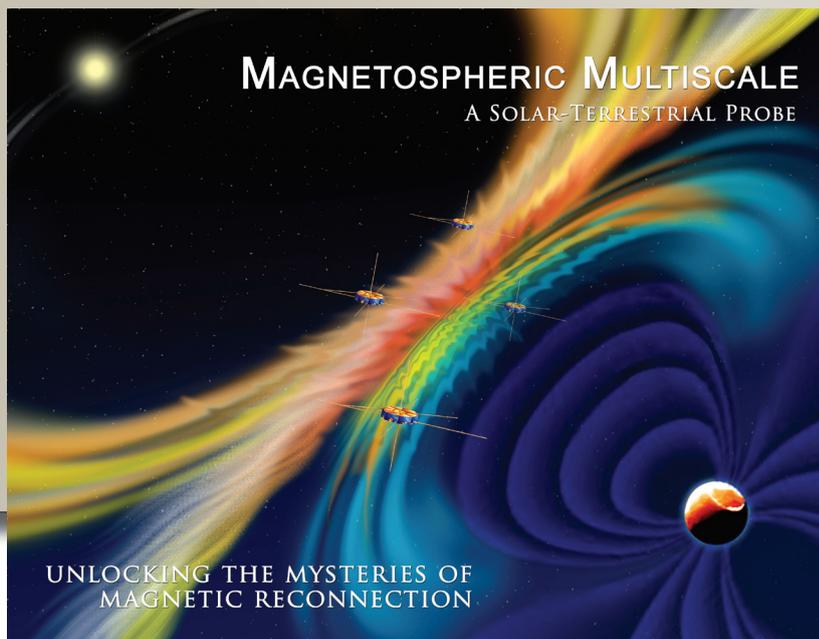


Figure 4 Shows Radiation Belt Storm Probe Spacecraft, the inner and outer radiation belts, and the slot region. Courtesy of Jet Propulsion Laboratory Web site



drives the amount of energy needed for geomagnetic storms, will also lead to a greater ability to analyze its effects on Military Decision-Making Process. (See Figure 3)

Radiation Belt Storm Probes “will provide unprecedented insight into the physical dynamics of the radiation belts and give scientists the data they need to make predictions of changes in this critical region of Space.”¹⁵ These physical dynamics of the outer radiation belt are resultant from solar event drivers and are often a function of solar cycle fluctuations and frequency of the mechanisms which cause geomagnetic superstorms and subsequent possible effects on military satellite operations.¹⁶ (See Figure 4)

With this new understanding of the solar cycle effects on the radiation belts, the Earth’s magnetosphere, and magnetic reconnection provided by Radiation Belt Storm Probe, Magnetospheric Multiscale, and Two Wide-angle Imaging Neutral-atom Spectrometers respectively, we will be able to better predict how these fluctuations will affect our military Space based assets, Military Decision-Making Process, and thus our support to the Warfighter. Space is one of the best jobs in the Army especially when Space education and professional development can be augmented by leading scientists with instruments in flight and first-hand knowledge of the future missions that they are developing. The UTSA/Southwest Research Institute graduate program in Space physics offers precisely this opportunity.

“Space is one of the best jobs in the Army especially when Space education and professional development can be augmented by leading scientists with instruments in flight and first-hand knowledge of the future missions that they are developing.”

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TIP OF THE SPHERE

FA40 Proponent/ Army Space Cadre News

BY MIKE CONNOLLY



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

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Space

The Best Job in the Army

FA40

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I would bet that if you asked the majority of Soldiers and Civilians serving the Army, they would all say that it was their branch or career field that was the best. This sentiment, although understandable, challenges the Army Space Personnel Development Office to make “Space - The Best Job in the Army” more than just the theme for this year’s symposium.

The recognition that FA40 officers comprise the foundation of the Army’s Space Cadre has long been an accepted fact; however the community relies now, more than ever, on Space enablers. These 1500 military (Active, Guard and Reserve) and 750 Civilian personnel are complementing the 328 FA40s while contributing to the success of organizations at all levels and components of the Army. Since we gathered last year, the ASPDO (comprised of the Army Space Cadre Office and FA40 Personnel Development Office) has aggressively worked to make being part of the Army Space community a rewarding and forward looking career that provides both Space enablers and Space professionals the opportunity to succeed.

In June, we left the confines of our offices and at the direction of BG Kurt S. Story conducted an off site with several senior FA40 officers. We made many decisions that will impact the entire community, hopefully all for the good!

The first action at our off site was to refine our mission statement. The Army Space Cadre Office and FA40 Personnel Development Office had been operating with two distinct mission statements. Although appropriate at the time they were developed, the current organizational structure and the merging of many tasks made it more appropriate for a single mission statement written in a manner that covers both Space enablers (Army Space Cadre Office) and Space professionals (Personnel Development Office). Additionally, we developed a vision and Mission Essential Task List which previously did not exist.

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We then confirmed that the Army Space Personnel Development Office would serve as the single point of contact for the eight life-cycle management functions as related to FA40 personnel development matters. Next, it was agreed that the FA40 Personnel Proponency Office would now be referred to as the FA40 Personnel Development Office as outlined in the latest update of AR 600-3.

Next, we established principal coordination points, and coordination points, as outlined in AR 600-3. A principle coordination point is the head of an agency that has additional staff relationships with specific personnel developers. The Deputy Commanding General and Director, Future Warfare Center was identified as principal coordination points for the Army Space Personnel Development Office. Coordination Points are individuals who have a vested interest in a career field. Human Resources Command, Senior Leader Division, U.S. Army Reserves and the National Guard were all identified as coordination points.

Then we established a personnel development steering committee as outlined in AR 600-3. This committee is designed to assist the Army Space Personnel Development Office in the performance of its mission. The members of the committee are based on position and include the Deputy, Future Warfare Center; Joint Functional Component Command-Space J3; Headquarters Department of Army G3/5/7; U.S. Army Space and Missile Defense Command/Army Forces Strategic Command G3 (if FA40); Commander, 1st Space Brigade; Senior Space Support Element Chief; and Chief, Army Space Personnel Development Office.

This off site with key senior leaders served as the first meeting of the steering committee and we discussed some initiatives to mature the career field. Among those were four year Career Field Designations, creation of a FA40B career track, internships, a PHD program, and 3Y LT recruitment. These are all developing initiatives which we will brief out at the symposium.

The Army Space Cadre Office has also accomplished numerous actions that collectively institutionalize the Space cadre across the Army and Joint Community. They have gained approval and submitted for coding Space billets that should appear on fiscal year 2011 manning documents. They worked with our Sister Services to develop a common method to code Civilian billets throughout the joint communities as well as an effective manner in which to track Space enablers. The Space Cadre Tracking System for both Soldiers and Civilians is being run through its paces and will be implemented this fiscal year. The identification of education and training requirements is ongoing with a focus on providing developmental opportunities for all members of the Space cadre. Finally, the 3Y (Space Enabler) Additional Skill Identifier for both Warrant Officers and Enlisted has been approved. This Additional Skill Identifier will now provide an identification method for all Soldiers who meet established training and/or educational requirements.

Although we still have work to do, as an organization, our vision is to provide a trained and ready Space cadre. With events such as our annual symposium, quarterly meetings of the steering committee, and continued input from you, we will meet that goal.

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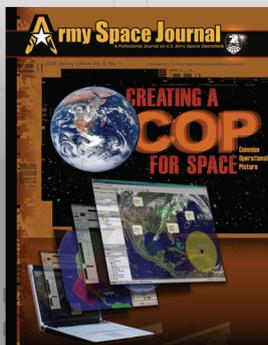


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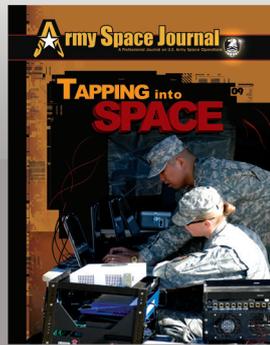
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