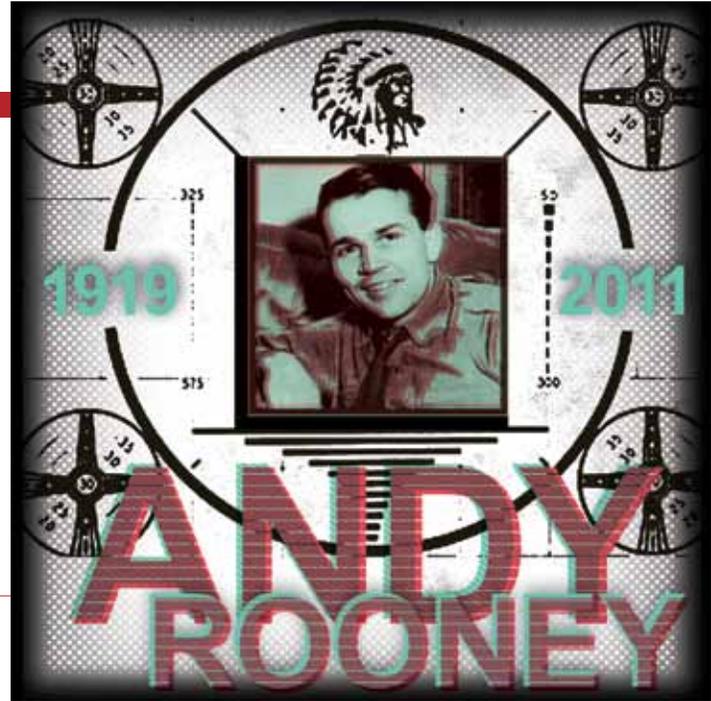


Straight Talk

– Reporting from the Trenches

Andy Rooney died. I always liked him because he questioned things and people of authority. I saw him on “60 minutes” as a disheveled elderly man who mostly needed to trim his eyebrows and seemed a bit grouchy and even unpleasant. He usually came up with some oddball piece challenging this manufacturer or that one for the size of a cereal box or other marketing ploy. But he always spoke his mind. He was never unwilling to take on powerful leaders, politicians or businesses for their slights on the average, everyday Joe. On television, he walked a mile and more in our shoes, so to speak, and he did it for 33 of his 92 years. He earned his way to have a masterful presence that will continue in memory. I can hear Rooney’s voice telling the television camera right now how it would be impossible for him to have a presence if he were not here. That’s the voice of reason that made him so popular with his audience.

For me, there has always been more to the Rooney story. In a way, he’s even iconic. When I think of Rooney and his mannerisms and words, I think of WWII, the campaigns in the European and Pacific theaters of war. I think of my favorite General in the Army, General Dwight D. Eisenhower and my least favorites, Generals Douglas MacArthur and George Patton. I think of Stars and Stripes, the independent military newspaper overseas. I think of my talks with Bill Mauldin, who created the Pulitzer-winning cartoon series *Willie and Joe* while serving on the staff of the European Stars and Stripes with Rooney. I think of Soldiers yesterday, today and even in the future. And, I think of my dad who passed away years ago. The very first Soldier I ever knew was my father, although he had taken off the uniform long before



I was born. Maybe that explains why I think of the average Soldier down in the trenches fighting when I consider all these things that Rooney triggers in my mind.

So it all gravitates – starts there, really – to the greatest generation that endured war. I have been a military journalist for all but three of my adult years and have come to know many Soldiers over the years. I read my first Stars and Stripes newspaper sitting on a curb in Frankfurt, Germany while on my way to my first job as a battalion journalist in 1979. From that day, I wanted to write for Stripes. It represented a level of professionalism and excellence in journalism that was meaningful to me. I did not know it then, but that attraction connected me to the past and my strong viewpoint on communication today. When I eventually did make it to the Stripes staff in Tokyo in the mid-1980s, I was able to experience just a touch of being a Soldier working the grind of a journalist for a daily newspaper.

The key to understanding the value of Stripes – Mauldin, Rooney, my dad, Eisenhower, MacArthur, Patton and WWII veterans – is to understand the newspaper’s premise. Stripes began as a Union newspaper in the Civil War. Afterwards it stopped printing until World War I. In 1942, Eisenhower brought the newspaper back in Europe with Army Soldiers Mauldin and Rooney a part of the original staff. In 1945, MacArthur started an edition for the Pacific troops. Since then, both editions have published continuously for U.S. peacetime and combat troops serving overseas – to include conflicts in Korea, Vietnam, Bosnia,

I don't know how Rooney would feel about being this icon. He'd probably call me an idiot for writing about him in an Army magazine.

Kosovo, Desert Storm, Iraq, Afghanistan. Throughout, the purpose of Stripes has been to provide unfiltered news to the troops away from their hometown newspapers.

The idea of providing a free press for troops fighting for the freedoms of Americans is a poignant one. Eisenhower seemed to understand this. I remember talking to Mauldin in the early 1980s. He told me that Patton did not really care for his portrayals in drawings of unshaven and disheveled Soldiers in the trenches, but Eisenhower understood the value. Mauldin told me about Patton calling him to his headquarters one day to “chew my ass – he had his view, I had mine and mine had more stars.” Mauldin explained that Patton felt the Army newspaper should carry only the party line story – that the images of Soldiers should be spit-n-polish in order to encourage the fighting troops to emulate the image. Later, I would learn that MacArthur seemed to have the same perspective and even ran the Pacific edition of Stripes with a tighter reign.

But the point goes deeper than viewpoints on what type information a military newspaper should print. What drives to the heart of the Rooney piece is that these talented Soldiers came together while men were fighting and dying to do something journalistic to help the cause. They covered the war. They questioned things, even authority. They knew – as did Eisenhower – that their journalistic work had to be credible, believable to have the meaning with troops. Through this approach, they brought the troops a little touch of home, a smile. Somehow or other, Eisenhower knew this was good. He knew his force would be better for it. It did not weaken discipline, I suspect it strengthened it. Sadly, through my reading about and understanding of both Patton and MacArthur, they seemed to lack this understanding.

I don't know how Rooney would feel about being this icon. He'd probably call me an idiot for writing about him in an Army magazine. He'd say I was over blowing the facts to make him seem like something he was not. But I guess I don't care. Rooney and my dad and Eisenhower and MacArthur and Patton and WWII veterans and the greatest generation each in independent ways represent something fresh as we move forward to face future challenges. While most are gone from this earth, we should remember the straight-talk effect they had on their surroundings.



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Mike Howard
Space Professional,

Please answer as many of the following survey questions as possible and return to LTC J. Dave Price ASAP. Your input could make a difference in Army space.

1. What should be the vision of SMDC/ARSTRAT?
2. What should be the objectives and goals of SMDC/ARSTRAT?
3. What should be the Army Space strategic communications plan or narrative?
4. What should be the vision of the Army Space proponent and FA 40s?
5. What should be the objectives and goals of the Army Space proponent and FA 40s?
6. What should be the strategic communications plan or narrative for Army Space proponent and FA 40s?
7. What is the future of Army Space and or FA 40s?
8. How does the mission of the Army command or FA 40s need to change to get ready for the next 10-15 years in support of joint commands?
9. Other than STO/ACCM, where does the focus of battalion, brigade and Army Space support forces need to be? What kind of mission creep or mission change to you perceive?
10. Any other thoughts? Can I quote you? If not, your answers will remain anonymous.

Please reply to J. Dave Price at john.price1@us.army.mil or jdp3usa@aol.com LTC Price is currently a student at the Army War College at Carlisle, PA

Nov 10 at 6:17 pm · Comment · Like



**LTG Richard
P. Formica**

Commanding General

USASMDC/ARSTRAT

USASMDC ARSTRAT

Streamlined, Steady, & Sharp

In my previous column in the Spring/Summer edition of the Army Space Journal I shared my testimony to the Senate Armed Services Subcommittee on Strategic Forces on May 11, 2011. The testimony was about the Army as a user of Space capabilities; the Army's Space strategy and policy; and the Army as a provider of Space capabilities. I shared the testimony in this column because I believe it provided a good summary of what the Army and U.S. Army Space and Missile Defense Command/Army Forces Strategic Command contribute to our nation's Space capabilities.

In this column, I will highlight the synergy derived from vertical-horizontal integration of our core tasks and the cumulative effect of a uniquely organized command that is geographically well-positioned to optimize support to combatant commanders and Warfighters.

As the Army's proponent for Space, high altitude, and global Missile Defense and as the Army's operational integrator for global Missile Defense, USASMDC/ARSTRAT has three core tasks which focus on providing capabilities today, tomorrow, and the day after tomorrow:

- 1) Providing trained and ready Space and Missile Defense forces and capabilities to the combatant commanders and to the Warfighter (today)—our Operations function;
- 2) Building future Space and Missile Defense forces (tomorrow)—our Capability Development function;
- 3) Researching, testing, and integrating Space, Missile Defense, directed energy, and related technologies (day after tomorrow)—our Materiel Development function.

Another key to the synergy we derive from integrating the three core tasks across functions is that we are geographically well-positioned to execute our mission.

This year, USASMDC/ARSTRAT aligned our organization along the three core tasks. The Operations function is responsible for providing trained and ready forces for today; the Capability Development function is responsible for building the Space and Missile Defense forces for tomorrow; and the Materiel Development function is responsible for researching the technologies for the day after tomorrow.

The Operations function is performed by our operational forces. The Deputy Commander for Operations, COL Timothy R. Coffin, is responsible for leading, training, and supervising our operational forces: 1st Space Brigade, 100th Missile Defense Brigade, the Astronaut detachment, and the Army Space Professional Development Office.

The Capability Development function is performed by the Future Warfare Center (FWC), led by Mr. Larry Burger. As the Army's force modernization proponent for Space, high altitude, and global Missile Defense, FWC follows the Army and U.S. Army Training and Doctrine Command (TRADOC) processes in building future Space and Missile Defense forces using the Doctrine, Organizations, Training, Materiel, Leader Development, Personnel, and Facilities construct. The FWC consists of the Battle Lab, Directorate of Combat Development, Directorate of Training and Doctrine, Decision Support Directorate, and the TRADOC Capability Manager for the Ballistic Missile Defense System and Space.

The Materiel Development function is performed by the Technical Center (TC), led by Ms. Debra Wymer. The TC is responsible for the directorates which research, test, and integrate Space, Missile Defense, high altitude, cyber, directed energy, and related technologies. In the TC are the Space and Cyber Technology Directorate, Emerging Technology Directorate, Rapid Transition, and U.S. Army Kwajalein Atoll/Reagan Test Site.

When we streamlined the command, we created a Deputy to the Commander. The Deputy works closely with the Chief of Staff to integrate across the functional areas associated with each of the core tasks by providing a vertical-horizontal view. The Deputy and the staff ensure the integration of the core tasks across the three functions of Operations, Capability Development, and Materiel Development.

Responding directly to the deputy are two special capability areas—the Chief Technology Officer (CTO) and Contracting and Acquisition Management Office (CAMO). The CTO looks internally across the functional components as well as looks externally to the command to develop the strategies and implementation of a “gate” process for all programs (technology, test, and demonstrations) in order to ensure effective inter-organizational efficiencies. CAMO manages active contracts (total value \$17.6 billion) for

USASMDC/ARSTRAT, the Army, and other agencies (fiscal year 2010 obligations: \$2.4 billion). In fiscal year 2011 CAMO successfully underwent a yearlong review to demonstrate synergies, efficiencies, and benefits of realigning under the Army Contracting Command, resulting in the approval to realign under the Army Contracting Command-Redstone (ACC-RSA) effective Oct. 9, 2011. As part of ACC-RSA, CAMO will remain co-located with USASMDC/ARSTRAT in direct support of its mission. USASMDC/ARSTRAT retains its Head of the Contracting Activity (HCA) authority with the ACC-RSA Principal Assistant Responsible for Contracting dual-hatted to support both USASMDC/ARSTRAT and the Army's Aviation and Missile Command HCAs.

Another key to the synergy we derive from integrating the three core tasks across functions is that we are geographically well-positioned to execute our mission. In Huntsville we're co-located with the Missile Defense Agency (MDA); Army Materiel Command/Army Aviation and Missile Lifecycle Management Command; Program Executive Office (PEO) Missiles and Space; PEO Aviation; Missile and Space Intelligence Center; NASA; and the tech base there. In Colorado Springs we are co-located with MDA; U.S. Northern Command; U.S. Air Force Space Command; Joint Functional Component Command for Integrated Missile Defense; and again with the particularly Space-oriented tech base there.

In summary, aligning USASMDC/ARSTRAT under our three core tasks and their related functional components, along with the cumulative effect of a unique organization and geographically well-positioned elements, is a synergy that optimizes support to combatant commanders and Warfighters.

Our nation is facing critical decisions in the military's future. Providing Space and Missile Defense capabilities to Warfighters while remaining disciplined stewards of the government's resources remains a critical focus for our command. This will be particularly important in an environment of tight budgets and with today's fiscal realities.

SECURE THE HIGH GROUND

**The
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**CSM Larry
S. Turner**

Command Sergeant Major

USASMDC/ARSTRAT

Space Sys

A Must Have for the Modern Fight

Any Soldier who's had boots on the ground in a combat environment knows the importance of maintaining continuous situational awareness, of precisely striking an intended target, and of having reach-back communication capabilities. What many Soldiers don't know is that you need Space-based systems to enable many of these critical capabilities. This lack of knowledge is both a good and a bad thing. It's good because it means we've been able to integrate Space across the Army in a transparent manner. It's bad because we haven't done a good enough job of educating the Soldiers on the ground about capabilities they receive and capabilities that are available from Space.

The recently completed Talisman Sabre training exercise with the Australian military shows just how much Space brings to the modern fight. "Space Operations help the commanders visualize movement on the battlefield using commercial topographical imagery, but it isn't just about terrain features and maps," said MAJ Courtney Henderson, U.S. Army Pacific, Space Support Element, Fort Shafter, Hawaii. "Space capabilities enhance the military's ability to communicate, navigate terrain, engage the enemy with better accuracy, and protect its forces."¹

Throughout Operations Enduring Freedom, Iraqi Freedom, and New Dawn, Space systems have given our Soldiers a strategic advantage and have helped keep them out of harm's way. The use of GPS and satellite imagery has gone from a "nice to have" to a "must have" mission requirement. We Space Enablers are very familiar with the advantage pre-

tems

“Space Operations help the commanders visualize movement on the battlefield using commercial topographical imagery, but it isn’t just about terrain features and maps.”

— MAJ Courtney Henderson

cision navigation and targeting brings to the battlefield, but many Soldiers aren’t aware that vital systems like Friendly Force Tracking can’t work without Space. Satellite imagery provides critical terrain information to the Soldier on the ground. When plotting attack and escape routes, I’m positive our Soldiers would prefer to know that a bridge on the route has been destroyed by seasonal flooding before trying to cross it.

Soldiers constantly use these products with little to no appreciation of what it takes to produce them. Again, a good and bad thing. As MAJ Henderson noted, “Space Operations Soldiers retrieve and interpret data and develop products that help commanders navigate on the battlefield. Whether they’re tracking convoys, establishing landing zones and distribution networks, or mapping critical infrastructure to locate obstacles, bridges, and crossings . . .”²

Another great example of how Space Enablers contribute to the safety of service members comes from the annual Army Space Cadre Symposium which was held the week of Aug. 1-5, 2011, in Colorado Springs, Colo. At the conference, a former U.S. Central Command Space Support Element member told of a team from the Department of Agriculture which was in theater to assess current crop conditions and the status of irrigation systems. A Marine Corps unit would escort the Department of Agriculture team, and was plotting the route for the inspection which would transverse several hostile areas, when a Space Enabler asked exactly what was needed for the assessment. The Space Enabler provided current satellite imagery of the areas in question to the team. After reviewing the satellite imagery, the team determined that they could develop their assessment using the satellite imagery and would not have to physically visit the hostile locations. Space kept

American citizens and their Marine escort out of harm’s way.

Space has become an integral part of all Army operations. As LTG Richard P. Formica, commanding general of U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, said at the Space Cadre Symposium, “there’s no going back.” We must focus on providing resilient Space capabilities for our ground forces in order to make sure the Army doesn’t experience “a day without Space.” We also must work to educate the rest of the Army on the role Space plays. As LTG Formica noted, we must provide “Space training for the rest of the Army—at the schoolhouses, in exercises, NCO schools, etc.” We’ll do this by helping them add information on what Space contributes to their current lesson plans and exercises, not by creating new courses or new exercises. The goal is to help the Soldier get a solid grasp on the importance of Space to mission success.

SECURE THE HIGH GROUND

Footnotes

¹ Corine Lombardo, “Space Systems Give Australians, U.S. Soldiers Edge in Talisman Sabre,” Aug. 3, 2011, <http://www.army.mil/article/62877/>.

² Ibid.

**The
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Dr. Steven
L. Messervy

Deputy to the Commander

USASMDC/ARSTRAT

Building Capabilities

Today, Tomorrow,
& the Day After Tomorrow

These days we see a lot of headlines and briefings that raise the issue of reduced budgets and being more efficient with our resources. “Do more with less ... find new ways to do our mission effectively ... we have to think differently.” However, our Space and Missile Defense forces and capabilities continue to grow in importance to the Warfighter. Just like we saw during the Arab Spring, Japan’s earthquake and tsunami disaster, and natural disasters in the United States, our high-demand, low-density capabilities are often requested to support the combatant commanders and ground commanders. Under an umbrella of uncertainty—in terms of both threats and resources—our challenge is to build and maintain the capabilities our Warfighters need. So what is U.S. Army Space and Missile Defense Command/Army Strategic Forces Command doing to meet those challenges, and how can we ensure that we are not only executing our missions effectively, but also preparing for the uncertain future?

The best thing we can do is ensure our team is trained and ready to deliver capabilities today and prepare capabilities that will meet the challenges of tomorrow. Within our command, Space and Missile Defense operational forces and professionals deliver capabilities 24/7/365 at 16 locations around the globe; the Future Warfare Center builds capabilities for future forces; and the Technical Center develops future technologies to address capability gaps.

As a result of our reorganization efforts in fiscal year 2011, these three components of our command are now streamlined. To summarize, we moved the TRADOC Capabilities Manager function out of Operations and placed it under the direction of the Future Warfare Center. We also merged two technology development centers—the Technology Center and the Test and Warfighter Solutions Center—into one Technical Center. Finally, the Commanding General created a

The senior leadership across the command has supported the LEMV team to ensure this fast-track project has the support it needs to provide a technology demonstration for the Warfighter in 2012.

Deputy to the Commander position to serve as an integrator across the three functional components of the command and the headquarters staff.

These three significant realignments will help USASMDC/ARSTRAT improve its organizational effectiveness and allow our workforce and leadership to better execute our core tasks in support of the Army, combatant commands, and the Warfighter. As we transition into fiscal year 2012, our focus will remain on our three core tasks, but with greater emphasis on improving command-wide integration.

We already are seeing the benefits of working across the functional areas of operations, capability development, and materiel development. For example, the Long Endurance Multi-Intelligence Vehicle (LEMV) pulls from subject-matter representatives across the command, to include engineers, budget analysts, program managers, military and intelligence analysts, requirements developers, modeling and simulation experts, and contracting specialists. Similarly, the senior leadership across the command has supported the LEMV team to ensure this fast-track project has the support it needs to provide a technology demonstration for the Warfighter in 2012.

Another example of how our command is synchronizing across the three core tasks is the recent formation of the USASMDC/ARSTRAT Concepts/Capabilities Development Integrated Concept Team (ICT). This team, chartered by the Commanding General, consists of command representatives from the staff, Operations, Future Warfare Center, and the Technical Center to collaborate on Space and Missile Defense concepts, analysis, and requirements, to ultimately shape or deliver new Space and Missile Defense capabilities to the Army. The ICT is designed to lead the command's efforts integrating and synchronizing all concept, doctrine, organization, training, materiel, leader development and education, personnel, and facilities activities related to the Army's Space, high altitude (HA), and Global Missile Defense (GMD) proponent. As such, the ICT will develop the conceptual underpinnings for the advancement of Army Space, HA, and GMD support; identify the associated required capabilities and gaps; and prioritize the gaps and identify solutions. The solutions will focus on answering the Army's most critical military problems.

The ICT will be guided by an Executive Oversight Committee consisting of the Deputy to the Commander, Chief Technology Officer, Deputy Commander for Operations, Director of the Future Warfare Center, and the Director of the Technical Center. Using this ICT as a means to leverage the talent across our command, USASMDC/ARSTRAT can shape the Army's Warfighting concepts, doctrine, and capability portfolios, and our efforts are resource-

informed, integration-focused, and outcome-based.

In emerging efforts such as the command's nanosatellite technology initiatives, led by the Technical Center, the command's functional teams are coming together to shape this effort and optimize the potential capability in support of the tactical Warfighter. As the command pursues a Joint Capability Technology Demonstration for tactical nanosatellites, the 1st Space Brigade is now involved to provide the operational perspective; the Future Warfare Center is supporting through studies and analysis, and concepts and architecture development; and the headquarters staff is engaged to help the project through external coordination and synchronization with other Army Space activities.

Finally, perhaps one of the best examples of success resulting from an integrated command effort was the recent publication of the Army Space Strategic Plan. When the effort was first tasked by the Army Space Council, elements of the command had multiple approaches for what the Army Space Strategic Plan should include. Through many iterations of command coordination with Headquarters Department of the Army staff, the Army now has a solid plan with priorities for its Space investment, and USASMDC/ARSTRAT will have a leading role in implementing the Strategic Plan.

These are just a few examples of what USASMDC/ARSTRAT is accomplishing as we emphasize integration across our unique command. Through the employment of our operations, capability development, and materiel development functions, we provide the Army with a core of subject-matter expertise in Space, high altitude, and ground-based Missile Defense. The Army and the Warfighter will soon reap the benefits of that expertise applied to the LEMV demonstration, the products from our ICT, the military potential of nanosatellites, and the prioritized deliverables from the Space Strategic Plan. Our talented team of Soldiers, Civilians, and contractors enables us to deliver capabilities today, tomorrow, and the day after tomorrow.

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**COL Timothy
R. Coffin**

Deputy Commander
for Operations

USASMDC/ARSTRAT

People Power

Finding the Return on Investment

Like most military commands, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command has a stated mission and vision. These statements are very helpful in defining and understanding the command's direction and purpose. A way to add meaning to these definitions, however, is to assess our professional capabilities to deliver on our *raison d'être*—meaning reason for existence. If we look across the various parts of the command that provide capabilities to Space and Missile Defense operations—doctrinal processes, organization, training, material/equipment, logistics, facilities, and people—we find the most important of these assets is the human element.

It is the people of the command who drive powerful contributions through their collective experience, knowledge, education, insight, and passion. With that in mind, it requires the investment of time, money, leadership, training, education, and care to develop people-based qualities. This is much the same as developing a technical solution like a missile interceptor takes in terms of time, effort, money, testing, and nurturing. Both types of investments are absolutely worthwhile and vital. In business, companies and employers make investments to recruit and retain employees, obtain new or upgraded equipment and facilities, and train and educate the workforce. In general, corporations make decisions along the way using “refund on investment” or ‘ROI’ as a metric. The same fundamentals apply when we—USASMDC/ARSTRAT—invest in its most valued asset, its people.

Our command vision highlights the fact that our workforce is talented and made up of Soldiers, Civilians, and contractors—all public servants. They are organized, aligned, and equipped to support three functional areas: operations or

Through investment, we gain the physical and knowledge-based human capital necessary to provide exceptional Space and Missile Defense capabilities today, tomorrow, and the day after tomorrow.

today, capability development or tomorrow, and materiel development or day after tomorrow. Let's informally designate the employees in those areas as Operators, Thinkers and Teachers, and Researchers and Designers, respectively. Equally important—and providing services across the entire command—are the members in our liaison offices and staff, contracting, and headquarters elements.

More than 840 of our Operators are providing day-to-day support to the Warfighter, either in place in the United States, forward stationed in Europe, Asia, or the Middle East, or deployed in an area of operations for the fight against terrorism. Operators in the command are primarily found in the 1st Space Brigade, 100th Missile Defense Brigade, selected portions of the staff and in the technical center operating radars on Kwajalein Atoll, and of course in our NASA astronaut detachment.

The center of gravity of the command's Thinkers, Teachers and Trainers is in the Future Warfare Center where they prepare the command to operate its U.S. Strategic Command and U.S. Army missions in the future. On the side of Army Service Component Command (ASCC) responsibilities, the team's activities look to providing future capabilities—forces and equipment in global strike, space, missile defense, cyber, and weapons of mass destruction. To meet the command's Army-level responsibilities, the team runs the Army's Space and ballistic Missile Defense "schoolhouse." They write doctrine and instruction manuals, teach courses at other military educational institutions, such as the Army War College, Command and General Staff College, and U.S. Military Academy.

Researchers and Designers grouped in the technical center investigate and develop equipment and technologies with potential for Warfighter use—again, with both Army and ASCC responsibilities in mind. Researchers and Designers are working more than 50 programs, creating solutions for our long-term needs as well as plugging the gaps in capabilities identified during our last decade of asymmetric warfare. They are doing this through advances in nanosatellites, solid-state lasers, medium- and high-altitude airships, advanced hypersonics, high-power microwave weapons, sensors, and many other technologies.

Each of these separate groups of experts could easily go their own way or collide across independent paths. Instead, the guidance of the command's common vision and the lubrication and glue provided by the supportive staff—

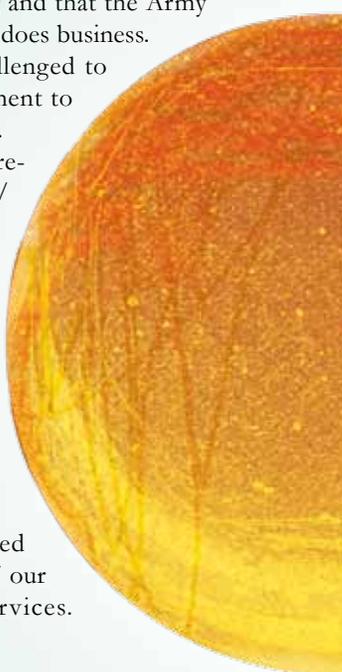
like CIO, Logistics, Personnel, Intelligence, Operations and Resourcing—help bind us together. This creates the path to move in a forward direction toward a more capable future.

Investment in the people of the command takes many forms. A few examples include salary, benefits, professional development, buildings, equipment and supplies, and official travel. The command makes such investments realizing that they will have both immediate and long-term benefits. These investments pay off in the short term by enabling the workforce to fulfill our mission and vision. In the long term, they assist in establishing a solid base upon which to build the future. Through investment, we gain the physical and knowledge-based human capital necessary to provide exceptional Space and Missile Defense capabilities today, tomorrow, and the day after tomorrow.

It is true the United States as a nation is making some hard choices on government spending and that the Army is making significant changes to how it does business. While USASMDC/ARSTRAT is challenged to think differently as well, the commitment to our people remains strong and enduring.

A powerful and potent force is created when the people of USASMDC/ARSTRAT come together as a focused team. The force becomes even a more powerful tool when a cross-cutting team of all four chords—Operations, FWC, Technical Center and staff—is formed leveraging the different skills and perspectives of the command. The command's leaders look to each and every person for contributions to fulfilling our mission.

Lest I forget, we are also blessed with the critical support from some of our sister and even foreign military services. Now, for the first time, Australian officers and soldiers serve as key partners and allies in offering us the tremendous opportunity to expand our horizons and the richness of our personnel treasure. We salute you all and thank you for your service.



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Larry Burger

Director

Future Warfare Center

iSpace

Operational Utility of Smart Phones

Market analysts estimate that more than 90 percent of all Americans have some type of wireless services contract and about five billion of the earth's 6.9 billion people have wireless access. Military studies show that not only do the majority of Soldiers entering the military own handheld devices, but they rely on them both in garrison and in combat. Some studies¹ show that Soldiers equipped with handhelds protect the devices as they do their weapons, a solid indication of how much they value these devices.

The Space and Missile Defense Battle Lab (SMDBL) in Colorado Springs has been experimenting with handheld devices, such as smart phones and tablets, and exploring ways to use them in Space operations and other mission areas. Based on the SMDBL's Scouts program, a continuing effort to identify shortfalls, gaps, and relevant technologies, an opportunity arose to co-develop technology jointly with Air Force Space Command (AFSPC). The AFSPC A3/Irregular Warfare Division and Space and Innovation Development Center (SIDC) approached the Battle Lab in the fall of 2010 with an idea for developing operational Space capabilities for handheld devices. The idea gave rise to a Joint Technology Exchange Program (JTEP) between SIDC and SMDBL to exploit handheld devices to serve Army, Air Force, Joint, and host-nation mission requirements.

The JTEP's initial project, named iSpace, was focused on developing Space Situational Awareness (SSA) functions on Android handheld devices. Less than a year later, SMDBL took its handheld capability to Panamax 11 (PMX 11), a military exercise that took place in Stennis, Miss., with foreign nation partners.

The Battle Lab experimented with a variety of handheld devices and operating systems and determined that the Android operating system (OS) offered greater versatility both in the number of different devices supported and the internal flexibility of the OS. Furthermore, Android has been selected by the Army's

The Battle Lab experimented with a variety of handheld devices and operating systems and determined that the Android operating system (OS) offered greater versatility both in the number of different devices supported and the internal flexibility of the OS.

Connecting Soldiers with Digital Applications (CSDA)² program as the OS of choice. SMDDBL also leveraged relationships with national organizations and laboratories to understand how their “mobility” work and development roadmaps could be used for iSpace. SMDDBL also connected with CSDA at Fort Bliss, Texas, and Fort Gordon, Ga., to ensure synchronization across programs.

SSA Android applications (“apps”) currently being developed jointly with SIDC (based on porting of the Integrated Space Situational Awareness tool set) include Position Dilution of Precision and Circular Error Probable current status and predictions for GPS. Also under development is an app for Overflight predictions for unclassified imaging and communications satellites (Satellite Reconnaissance Advanced Notifications). Another emerging application will help determine selection and launch criteria for GPS-guided munitions by mapping GPS signal strength and interference conditions to requirements for the employment of specific mortar and artillery munitions and platforms.

The success of iSpace quickly led to another project, a variant of iSpace, called the Advanced Visual Information System (AVIS). AVIS is a tactically deployable handheld system that supports global Beyond Line of Sight (BLOS) communications, Situational Awareness—including imagery and basic mission planning, and Grey Force Tracking (GFT) in austere conditions (e.g., no cell phone towers and limited or no commercial power). AVIS uses Android tablets to support operations and in the absence of WiFi or cellular service, links them via Bluetooth to Iridium and Inmarsat satellite communications (SATCOM).

The kits are designed to be used by host-nation security and military forces supporting Foreign Internal Defense missions. They are built entirely from commercial, off-the-shelf components, are not classified, and have no export restrictions. AVIS systems, when brought to a country by U.S. military personnel, also support the larger objective of building partnership capacity. PMX 11 provided an ideal environment to test and evaluate early versions of the AVIS kit because of the bilateral nature of the exercise and the expertise of the participants. A team of SMDDBL and SIDC members deployed to Stennis, Miss., in August 2011 to participate in PMX 11 and give U.S. and foreign Warfighters the chance to test the program’s equipment and operational concepts.

The AVIS System

An AVIS system consists of a Hub Kit and one or more Edge Kits. The Hub Kit contains everything you need to establish a mobile headquarters, including a 7- or 10-inch tablet (such as the Samsung Galaxy) and a Broadband Global Access Network (BGAN) 700 terminal that provides Inmarsat connectivity to the Internet. The BGAN also serves as a WiFi hot spot at the hub. Imagery of the area is stored on 16-gigabyte SD cards and transmitted wirelessly to the tablet using an AirStash™—a mini storage device. Independent power consists of a 50-watt lithium polymer battery which can be recharged from a variety of sources including a 60-watt solar panel. Spare batteries, car chargers, and kinetic (hand-cranked) power solutions are also included in the Hub Kit. The iSpace team partnered with DigitalGlobe during the recent Panamax exercise to take advantage of live collects over the area of interest that could be processed and sent to the Hub tablets using Inmarsat as the transport.

Edge Kits are smaller and lighter than Hub Kits and are used by field operators at the team, squad, or platoon level to communicate with the Hub. Currently, Edge Kits are configured with Dell Streak handheld devices, Iridium modems, and a commercial tracking device. The current tracking device is the SPOT GPS which enables Friendly and Gray Force Tracking from Edge Kits by providing tracks to a central web service. The web service then can be accessed from anywhere, including at the Hub. Edge Kit power solutions are similar to those of the Hub Kits; a variety of batteries, car chargers, and kinetic devices make up the power solution. Using apps readily available on the Android market, data packets can be sent to and from the Hub and Edge Kits over Iridium and Inmarsat and displayed as tracks on the handheld devices. In this way, mission planners can route or re-route, track, or command operations from the Hub to the Edge.

PMX 11 Field Trials

PMX 11 is an annual U.S. Southern Command-sponsored exercise that focuses on ensuring the defense of the Panama Canal. It includes naval special operations forces from Panama, Guatemala, Peru, Colombia, Ecuador, Chile, and the Dominican Republic. During PMX11 SMDDBL personnel MAJ Tim Haynie, Miller Belmont, Bill Coffey, and Jamie Dunlap equipped select

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Debra G. Wymer

Director

Technical Center

A New Phase

Working Each & Every Day for Technical Superiority

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s director of the Technical Center at U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, I lead an organization of scientists and engineers responsible for the development of advanced Space, Missile Defense, high altitude, and directed-energy technologies. We strive to provide unsurpassed Space and Missile Defense capabilities to the nation by, first and foremost, directly supporting the Warfighters on the battlefield.

This is an exciting time for our team, as we embark upon a new phase of the Technical Center at USASMDC/ARSTRAT. After careful deliberation, senior leaders found it to be in the best interest of achieving maximum productivity to merge the two organizations formerly known as the Technology Center and the Test and Warfighter Solutions Center into what is now known as the Technical Center. Adapting and evolving to meet the technological needs of the Warfighter is a constant challenge for USASMDC/ARSTRAT, and I am confident that this merger will increase effectiveness and efficiencies, compensate for reduced budgets, and allow us to continue to give our Soldiers the best possible support. The merger corresponds with the Commanding General's vision and guidance to align our operations with Department of Defense and Army priorities. Our fee-for-service business model dictates continual change, and by implementing this merger, we are remaining relevant to the needs of our most important customer, the Warfighter.

As the command's technical arm, the new Technical Center is focused on providing critical technologies that meet today's requirements and address future needs, planning and executing test and evaluation programs and performing related analyses, and most importantly supporting operational

The Technical Center has a rich legacy of technology development and transition, especially in the field of Missile Defense, and we remain proud of our heritage.

elements. The U.S. Army Kwajalein Atoll and Ronald Reagan Ballistic Missile Defense Test Site (USAKA/RTS), a subordinate element of the Technical Center, plays a key role in test and evaluation and in operational support. Not only is USAKA/RTS critical to the testing of Missile Defense, ballistic missile, and hypersonic systems, it also plays a vital role in accomplishing U.S. Strategic Command's Space Object Identification/Space Surveillance Network. Our Space and Cyberspace Technology and Emerging Technology directorates develop, integrate, and transition Space, Missile Defense, high altitude, cyberspace, and directed-energy technologies and conduct high-energy laser testing. Additionally, we have separate divisions that are dedicated to the transition of specific products to the Warfighter and our customers as rapidly as possible. Because our primary customer base is constantly changing, we are shifting to more in-house engineering work, which also allows each of the Technical Center subordinate elements to create and maintain closer relationships with their customers.

Another major advantage of shifting to more in-house engineering work is the opportunity to train new employees through hands-on experience. The Concepts Analysis Lab (CAL) division of the Technical Center is especially committed to hiring and training student interns and young engineers who work on summer breaks and part-time throughout the school year. The CAL offers young people the opportunity to gain technical hands-on work experience early in their career, such as performing ground station operations for Space and Missile Defense Command-Operational Nanosatellite Effect (SMDC-ONE). The SMDC-ONE is a low-cost, lightweight communications satellite, which was designed to provide a rapidly responsive, gap-filling capability to the Army's disadvantaged users. The first flight of SMDC-ONE was hugely successful and demonstrated the military relevance of a small satellite. We intend to fly several more SMDC-ONE satellites in various configurations and roles in the near future, and we also have new technology efforts ongoing to expand the capabilities of nanosatellites.

The successes of this small satellite program are expected to have a positive near-term impact on the Warfighter while giving us a fantastic opportunity to draw in many college students and young engineers who would like to gain experience in technical fields. This mutually beneficial relationship also allows the Technical Center to better prepare for the challenge posed by a retiring workforce. We work closely with the Student Temporary Employment Program and Science, Mathematics, and Research for Transformation Scholarship program to ensure that many of the engineering interns we hire will become full-time USASMDC/ARSTRAT employees in the future.

While our future workforce and the development of technologies to meet future needs are critical, we also are dedicated to getting systems into the hands of Warfighters without delay. An example of one of our rapid transition programs is the Long Endurance Multi-Intelligence Vehicle (LEMV). The LEMV is an unmanned hybrid airship approximately the width and length of a football field and stands seven stories high. This lighter-than-air platform will stay aloft for weeks at a time, carry more than a ton of payload, and operate at an altitude of more than 20,000 feet. It is equipped with radar to detect the movement and location of enemy vehicles or personnel, and that information is then downloaded to units on the ground. The program specifics include a very short 18-month development schedule that began in June 2010 and is being carried out by a group of engineers and analysts from USASMDC/ARSTRAT, other government agencies, and the Northrop Grumman team. The LEMV program will provide a tremendous capability to Warfighters.

The Technical Center has a rich legacy of technology development and transition, especially in the field of Missile Defense, and we remain proud of our heritage. While my short-term priority is fully implementing the new organization, we will remain focused on providing the Warfighter with dominant Space and Missile Defense capabilities and supporting U.S. Strategic Command and the geographic combatant commanders. We are expanding our portfolio by developing a focused role in cyberspace and providing nontraditional and innovative capabilities to rapidly assess systems and operational concepts. We are making the directed-energy path to weaponization a priority and are shortening the timeline to bring Space and high altitude capabilities to the field. We will continue to seek new business opportunities that align with core missions and adapt to changing and emerging requirements. Within the Technical Center, we are dedicated to meeting the needs of the Warfighter, and we will continue to work each and every day to ensure continued technical superiority on the battlefield.

SECURE THE HIGH GROUND

The
Sun
Never
Sets on
USASMDC/
ARSTRAT

U.S. and Partner Nation (PN) “live forces” with AVIS kits in order to gain observations, insights, lessons, and recommendations into how best to employ and upgrade AVIS capabilities.

Throughout all phases of PMX11, AVIS provided BLOS situational awareness, GFT, and “SOS” personnel recovery capabilities to the U.S. Navy Special Warfare Development Group-4, Special Operations Command SOUTHCOM, and select PNs. Using AVIS kits, these forces conducted air, ground, and naval counter-terrorism, security, and surveillance operations throughout a variety of locations in southern Mississippi (which replicated an area of Colombia’s Northwest coast), in and around the John C. Stennis Space Center, the Gulf of Mississippi, and Camp Shelby, Miss. Edge Kits were provided to Navy SEALs, Special Boat Teams, and select forces from the Chilean and Colombian navies. AVIS was used to collaborate between U.S. and PN forces to neutralize simulated threats from a terrorist organization. The devices allowed exercise participants to track and communicate with their forces throughout all phases of PMX 11.

The AVIS team partnered once more with DigitalGlobe during PMX 11 to collect, format, and disseminate unclassified commercial imagery. One of these efforts was a live collect over the PMX 11 area of interest that could be processed and sent to the Hub Kit tablets via Inmarsat.

AVIS Featured at SMD Conference

AVIS kits also were demonstrated at this year’s Space and Missile Defense Conference in Huntsville, Ala., where the iSpace team shared a booth with fellow Future Warfare Center personnel. Of particular interest was the Iridium Short Burst Data device that was built in the Battle Lab to provide SATCOM capability to smart phones. The device features a battery, Bluetooth unit, and Iridium transmitter/receiver built into a small Pelican case. The device offers a choice of antennas, including a car-mounted antenna and an omni-directional antenna.

The Next Generation iSpace and AVIS

Based on the success of the iSpace and AVIS prototypes in fiscal year 2011, AFSPC is continuing fiscal year 2012 teaming and partnering with SMDBL. In addition to teaming with external organizations, SMDBL is cross-walking iSpace/AVIS development within the U.S. Army Space and Missile Defense

Command/Army Forces Strategic Command to include the Future Warfare Center’s Future Innovations Group, Missile Defense Directorate, etc.

SMDBL will continue to work with CSDA app developers at Fort Gordon and leverage companies such as Google, Analytical Graphics, DigitalGlobe, GeoEye, Lattitude, and General Dynamics as well as national and other Department of Defense organizations. Future plans for iSpace and AVIS include support to Eagle Vision and experimentation/demonstration at venues such as the Coalition Warrior Interoperability Demonstration.

SMDBL continues to work closely with DigitalGlobe to provide an Android version of the Portable Dissemination of Geospatial Data, and with AGI to develop new SSA capabilities. High on the list for the upcoming year is the processing and dissemination of classified Space data and pursuing iSpace accreditation for classified use as well as developing more apps focused on the Space and Missile Warning missions.

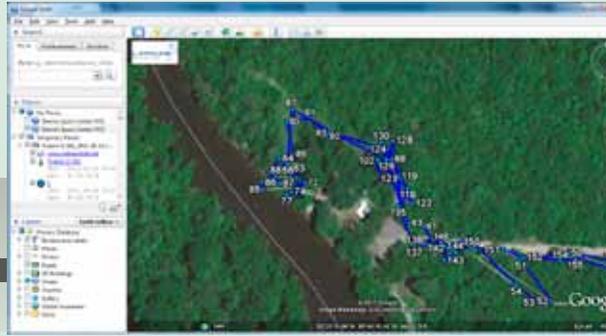
Emerging commercial technologies such as smart phones and tablets, new and improved power options, and the continuous miniaturization of once large devices offer enormous potential to today’s military. If we can make handheld apps that support training, situational awareness, and operational readiness, then we can tap into a huge resource already available at very little cost. Further, if we can develop the means to support classified data at rest and transmission using small, self-sustaining compact kits, comprised of smart phones, tablets, and SATCOM devices, we can seriously reduce the huge mix of tools, laptops, network equipment, mobile ground stations, satellite dishes, batteries, and other technologies that Soldiers are obligated to carry around with them to perform their mission.

Footnotes

¹ Studies were conducted at Fort Bliss, Texas, by teams supporting the project known as Connecting Soldiers to Digital Apps.

² CSDA is sponsored by the Mission Command Center of Excellence and the Army CIO/G6, with support from U.S. Army Training and Doctrine Command, the TRADOC deputy commanding general for Initial Military Training, and other Army organizations, including the U.S. Army Space and Missile Defense Command/Army Strategic Forces Command.

SMDBL's Miller Belmont and Jamie Dunlap follow tracks from AVIS Edge Kits



Screen capture from the AVIS Hub Kit showing tracks of a SEAL Team and supporting PN forces

SMDBL continues to work closely with DigitalGlobe to provide an Android version of the Portable Dissemination of Geospatial Data, and with AGI to develop new SSA capabilities.



USN Lieutenant Sean Norton, NSWG-4, prepares an AVIS Edge Kit for operations in the recent PMX 11 exercise



SMDC Soldier SFC Gabriel Cardenas demonstrates iSpace functions on a Samsung Galaxy tablet.



AVIS Edge Kits fit in a camera-sized backpack