

OPERATION NEW DAWN ENDS

Army Tactical and Operational
Space Faces a Strategic Crossroads

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Partnerships prove
essential during
Operation New Dawn.
*All photos are courtesy
of USF-I Joint Combat
Camera and DoD.*





EDITOR'S NOTE

This article resulted from a Space After Action Review June 24 at the Al Faw Palace in Baghdad, Iraq, by Space professionals serving in the Iraq Joint Operations Area. The review assessed the status of the roles, missions and functions of SSEs, Space integration and Space force structure in Army divisions and corps. Attendees included members of the Space Support Elements from U.S. Forces – Iraq from the 18th Airborne Corps, Fort Bragg, N.C., U.S. Division - North from the 4th Infantry Division, Fort Carson, Colo.; U.S. Division – Central from the 25th Infantry Division, Schofield Barracks, Hawaii; and U.S. Division - South from the 36th Infantry Division, Texas.

This article would not have been possible without the special effort of all the contributors.

Since the United States invaded Iraq in 2003, numerous Army Space professionals served with distinction in the Iraqi Joint Operations Area (IJOA). Army Space professionals have made significant and lasting contributions to both combat and stability operations during Operation Iraqi Freedom ending August 2010 and Operation New Dawn which ends this year. The purpose of New Dawn has been to support “Iraq’s continued development into a sovereign, stable, and long-term, self-reliant strategic partner that contributes to peace and security in the region.”

While the current experience and quality of the Army Space Cadre, both Space Professionals and Space Enablers, across the U.S. Army is unparalleled, contributions of the Army Space professionals during U.S. Forces-Iraq (USF-I) stability operations provides an excellent case study for professional assessment. Now is a good time to consider the maturing of the Space force that has occurred over the last eight years in Iraq. One way to consider Space operations officers today – those serving on the USF-I Space team supporting stability operations – are as utility infielders on their corps and division staffs. They each bring Space expertise to a variety of jobs critical to the effort.

Surveyed Space professionals anonymously responded that their primary missions during New Dawn included Integrated Joint Special Technical Operations (IJSTO) chief or planner, Alternative or Compensatory Control Measures (ACCM) program manager, general staff planner, monitoring the Space environment, and Information Operations planner. Additionally, every Space professional and enabler serving in a Space Support Element agrees that the IJOA is a mature theater. Five major Space force enhancement functions are well understood by the staffs: Communications; Position, Navigation and Timing (PNT); Intelligence, Surveillance, and Reconnaissance (ISR); Missile Warning; and Environmental Monitoring. An additional function that is less understood, but still equally important, is Space Control which includes Offensive Space Control, Defensive Space Control, and Space Situational Awareness.

3 QUESTIONS

A What is the crossroad as you see it?

Story – For Army Space professionals, we must listen to the lessons learned from eight-plus years of war with deployments of Army Space units and personnel. These lessons can help us adapt our training, equipment and Army Space Force structure for the future. We must change to maintain our relevance into the future. The next war will not necessarily be like this war—especially if it is against an enemy with sophisticated Space capabilities. We must develop the training and capabilities to successfully operate in a denied, degraded, disrupted Space environment. In a full spectrum operation against a sophisticated adversary, Space professionals will be fully engaged in Space and in a lesser conflict or during stability operations in a mature theater—Space professionals will work across the warfighting staff as “utility infielders.”

For the Iraqi people, the crossroad is when the Iraqi government and people have to make a choice after the retrograde of U.S. Forces is complete. The security agreement states that U.S. Forces must be out of Iraq by Dec. 31, 2011. The U.S. invested precious lives and national treasure to oust a dictator and allow the Iraqi people to enjoy freedom. It is now up to the Iraqis whether or not they will nurture the seed of democracy where people have a voice or whether they will backslide into days of the past.

A Now that U.S. forces will be out of Iraq, what does that mean to us in terms of Space with the Iraqi forces?

Story – Space is not really in the consciousness of most Iraqis. Iraqis currently have no national Space program and they rely on others for both military and commercial space. Realize that the Iraqis do not yet have air or missile defense systems—military Space is not currently on their agenda. Iraqi forces will purchase Space support and Space-enabled equipment from other countries.



BG Kurt S. Story in Iraq

With this as a starting point, Space professionals need to help clearly define the role of Space in the Army’s tactical and operational headquarters in the future. The options are: 1) maintain the current force structure and functions, 2) modify the force structure to accomplish current and likely future requirements, or 3) merge Space with related career fields to provide a strategic enabler or technical enabler staff generalists that shape integration of unique, technical, national capabilities in the operating force. To assist in the analysis of the options, this article begins with an overview of the evolution of tactical and operational Space in the U.S. Army and assesses the future in light of the U.S. Army organizational and proponent constructs.

Overview of tactical and operational Space evolution

Before 2005, the only Space operations officers or Functional Area (FA) 40s assigned within the operating force were majors assigned to Corps G3s – one Space professional per organization. Since 2005, the expertise that was organic to an organization has grown to a Space Support Element (SSE). This element now includes two FA40 officers in a division and three in a corps, along with a satellite communications NCO in each headquarters. The primary function of all deployed division and corps SSEs became that of managing Integrated Joint Special Technical Operations (IJSTO) and focal point programs classified with the Alternative or Compensatory Control Measures (ACCM) caveat. This was primarily out of operational need. It was a natural fit for FA40s since they had the required security clearances for IJSTO and co-locating the ACCM mission with the IJSTO vault made sense since it provided a secure location for ACCM operations.

This situation of the Space professional needing flexibility becomes the overarching theme that emerges from looking at the Army Space team in Iraq. The 2008 Spring edition of the Army Space Journal included a bellwether article *Successes from the Field: OIF V* that presented an informative overview of employing division SSEs and four recommendations. Based on the situation in 2010 and 2011, SSEs in New Dawn, and likely the rest of the Army, appear to have embraced these recommendations.



Space After Action Review June 24 at the Al Faw Palace in Baghdad, Iraq, by Space professionals serving in the Iraq Joint Operations Area.

- Get smart on Special Technical Operations and Alternative or Compensatory Control Measures
- Leverage corps Space Support Element and supporting Army Space Support Team
- Don't worry too much about the Space Support Element Toolset-Light
- Expect opportunities to do other things and do the best at them

In 2009, however, the Army established the FA29 electronic warfare career field and assigned it as the Army proponent for IJSTO. This means that division and corps electronic warfare officers will likely become responsible for IJSTO in the future. Since SSEs are currently responsible for IJSTO within virtually all U.S. Army divisions and corps, Army Space professionals find themselves at a crossroads requiring a strategic assessment and redesign of tactical and operational Space staff support.

To better understand this dynamic, it is necessary to understand the integration of Space capabilities into the Army since the 1990s. This will help in examining the purpose and factors that influenced the creation of the SSEs and Army Space Support Teams prior to military operations in Iraq.

In 1998, the Army began a critical phase of integrating Space capabilities into the Army by establishing the Functional Area 40 or Army Space Operations officer. At the time, there were many officers with the 3Y or Space Additional Skill Identifier signifying significant expertise in Army Signal, Military Intelligence, and Aviation branches. But that meant Space was a secondary skill and their assignments were not actually conducive to further development as a Space professional. Many felt this factor hindered Army efforts to work with the Air Force in developing Space systems and improving Space support to Army operations. So the establishment of Army Space moved the Army forward significantly in its desire to ensure the Army was a Space-enabled force. With the establishment of just over 120 FA40 billets and a Qualifications Course established in 2000 based in Colorado Springs, the Army entered a new phase of Space operations.

The going-in concept for this phase came from a concept U.S. Air Force General Howell Estes implemented – the Joint Space Force (JSF).

★ What do you see as the primary point of this article in relation to the Space community and Iraq?

Story – There are several take-away points:

- Army Space contributed greatly to and enabled our highly successful efforts in Iraq in both combat and stability operations. Space facilitates our ability to find, fix, and kill the enemy while enabling force protection of friendly forces.
- Army and Joint Forces rely heavily on Space-based capabilities to effectively operate.
- Army Space professionals and their families sacrificed a lot.
- Army Space matured greatly over the last eight-plus years of war.
- As a theater of operations matures, Space becomes normalized – or operationalized – so that Space professionals are not solely focused on Space, but contributing across all battlefield functions as utility infielders.
- Lesson learned in this conflict may or may not apply to a future conflict—especially against a sophisticated, Space-faring enemy. We must evolve to maintain our relevance.
- Army Space cannot rest on its laurels. We must posture ourselves for the future by adapting our Space formations and improving the training of our Space professionals.

I am extremely proud of the outstanding contributions and sacrifices made by Army Space Professionals in support of Operation New Dawn (OND). FA40s made significant and lasting contributions to United State Forces-Iraq (USF-I) combat and stability operations in support of “Iraq’s continued development into a sovereign, stable and long-term, self-reliant strategic partner that contributes peace and security in the region.”

To use an analogy, I consider Space Operations officers supporting OND to be “utility infielders,” players on a baseball team who do not have a starting role on the field (not a primary staff officer), but one who is capable of playing more than one of four defensive infield positions: second base (J2) third base (J3), shortstop (J6) and less typical first base (J5).

Contributors wrote with the freedom to express the role of Space in OND as they saw it.



Estes, who served as the commander-in-chief of U.S. Space Command from 1996-1998, told his staff to “operationalize, normalize, and institutionalize” the JSF. One of the contributors to this article (COL (R) Glen Collins, then a U.S. Army lieutenant colonel) was responsible for implementing Estes’ guidance. The solution was to identify precedents and paradigms used by the terrestrial Joint Forces from the Army, Navy, Marines, and Air Force and apply them to the Space Force concept. In a matter of a few years, the JSF implemented Space campaign plans, Space operational orders and, for the Air Force, Space tasking orders. All were based on proven joint doctrine. U.S. Space Command published a command-and-control concept of operations for Space Forces and developed the Space Battle Manager Core Systems (SBMCS) to maintain Space Order of Battle information on the Global SATCOM Support Centers.

This experience came to U.S. Army Space and Missile Defense Command in 2000 when Collins became the director of the Force Development and Integration Center. The same “operationalize, normalize, and institutionalize” Space philosophy from U.S. Space Command became instrumental in integrating Space into Army operations. All of these programs had the objective to make Army Space Forces like the rest of the Army. If it was good for the field artillery, infantry, signal, and other professional fields in the Army, it was good for the Army Space forces. The effort resulted in the following programs being initiated over the next years:

- Space Officer Qualification Course
- Space Force Management Analysis (FORMAL) and the establishment of the Army Space Cadre
- Establishment of 1st Space BDE, the 100th GMD BDE, the 1st Space BN, the 117th Space BN (CO NG), the 49th Missile Defense BN, and the 53rd SIG BN as MTOE units. All were TDA or didn’t exist before.
- The creation and publishing of the Army Space Journal.
- The establishment and location of additional Space training courses in Colorado Springs with the goal of forming a virtual “Fort Space.”

As these programs developed, they were very important in addressing an experience issue. Initially, FA40 assignments were concentrated in Colorado Springs within U.S. Space Command and U.S. Army Space Command. There was a single FA40 major

assigned to the corps headquarters with additional reach back Space support provided by Army Space Support Teams assigned to Army Space Command. At the first FA40 Conference in 2001, there were many complaints from the corps FA40s that their G3 and other staffs didn’t know how to best utilize their skills and that they often were assigned additional duties that basically relegated Space to a secondary priority. A major contributing factor was that most of the officers assigned to the outside units had minimal Space experience. Compounding that, leaders in the units where the FA40s were assigned had little idea how to maximize Space capabilities.

As the Army Space force grew, another problem was to address how to support the operational Army. The augmentation support for the corps came from an ARSST that did not routinely provide support during routine training and exercises. As a result, the ARSSTs were not well integrated with the supported corps when they arrived for deployments or the occasional large exercise. This problem was no different than other branches of the Army in integrating with the maneuver force, so Force Development Integration Center developed the concept of having a Space Operations Cell of FA40s that would be permanently assigned to the Army, corps, and division headquarters. To avoid confusion with the Special Operations Forces, the name was changed to Space Support Element. It was modeled on the Fire Support Element concept. Like the FSE, the SSE was intended to be the integrator of Space support, and a “plug” that augmenting Space forces such as an ARSST would connect through to the supported unit. The SSE both institutionalized and more importantly normalized Space support to the Army unit.

The work began to make the SSE part of the Objective Force, under development starting in 2000. In 2001, though, a critical demonstration moved the idea forward. Training and Doctrine Command (TRADOC) was building the Interim Division (I-DIV) as a transition step to the Objective Force. During a wargame, a question came up about using commercial satellite communication to support the division – would the necessary bandwidth be available. The senior military leader asked: “Exactly what satellites are available to support the I-DIV?” No one was able to answer him except Collins, representing Army Space. After briefing Space support for the I-DIV – including military and civilian satellite communication, the SSE concept was approved.



Army Space Support Elements were an integral part of the team training for Iraqi forces as part of Operation New Dawn.

As the command built the manpower & equipment requirements for the SSE, a few simple rules guided the effort:

- Have enough rank to survive and be heard in the HQs staff.
- Ensure enough personnel were assigned so that a Space Officer was on duty 24x7 during field operations and could support both a Tactical Air Coordinator and the Tactical Operations Center.
- For the SSE Toolkit (SSET) developed by the Battle Lab by LTC Baehr, ensure the SSET had independent communications capability so that the Space Officer was always connected to the JSF and the SBMCS. This supported our Concept of Operations for Space Officers to have a small footprint forward and to reachback to the JSF for information, taskings, and support.

In some minds, the SSE replaced the need for the ARSST, so the role of the ARSST came into question. TRADOC viewed the ARSST billets as bill payers for the SSE. This presented a challenge, so USASMDC/ARSTRAT proposed that Army Space forces were to create a battle roster to augment the SSE, as needed, for extend operations. Over time, the ARSST adapted to support other Services (such as the U.S. Marine Corps) and units not assigned an SSE (such as the Coalition Provisional Authority during Operation Iraqi Freedom), and saved themselves from being eliminated.

Assessing the future in light of the present

The next step in understanding where the Space effort is today in terms of integration into Army operations is in grasping the status of the elements of Space force enhancement. A quote from *Success from the Field OIF V*, an article printed in the Army Space Journal in the 2008 Spring Edition, provides an entry perspective. “Traditional Space force enhancement has matured greatly on the corps and division staffs, freeing up SSEs to focus on other tasks.” This trend has held steady since 2006 so that today Army leaders both inside the Space community and outside have a greater realization of the five Space force enhancement functions: communications, PNT, ISR, missile warning, and environmental monitoring. Most of these Space-related functions are performed in the G2 and G6 staffs. While the establishment of SSEs envisioned a great deal of Space requirements for tactical and operational headquarters, this has

not been shown in Operation Iraqi Freedom or Operation New Dawn – hence the present SSE emphasis on IJSTO and ACCM.

A few thoughts on the traditional SSEs during Operation New Dawn

Communications There has been little need for SSEs to supplement the division G6. The SSE’s role in communications has been a supporting role in GPS electromagnetic interference (EMI) resolution. EMI recognition, battle drills and resolution all require improvements.

PNT PNT at the corps and division level consists of applications involving devices that use GPS. Primary among these are Friendly Force Tracking (FFT) equipment, precision-guided munitions and Unmanned Aerial Vehicles. FFT equipment is handled by the G6 who well understands and has the personnel to troubleshoot issues such as signal latency. SSEs can assist with reports which provide GPS accuracy predictions [Position Dilution of Precision (PDOP) reports], but the Air Liaison Officer (ALO) and the Staff Weather Officer (SWO) are also conversant in this information. The UAVs that the Division G2 Collection Manager controls use the GPS signal for navigation and payload operation.

ISR The corps and division G2 Collection Managers are experts on ISR. They control all of the ISR assets. There are some niche ISR-related tasks that the SSE can perform. The SSE can provide confirmation of an infrared event. This information may be used to assist in locating a downed aircraft if there was an explosion. If the adversary had satellites and ground stations that were potential targets, the SSE could assist in monitoring the status of these targets.

Missile Warning The corps and division staffs have a section devoted to Air and Missile Defense which maintains a presence in the operations center. The SSE can monitor the publicly available SIPR Website that tracks events for situational awareness and as a backup.

Environmental Monitoring SSEs monitor the Space environment by reviewing the daily Space slides sent out by the Combined Air Operations Center to see if there are any effects to operations. Very rarely, scintillation may cause some negative effects with communications. Other than that, Space weather did not generally impact operations.

Success is as much personality driven as any capability you can provide. Space professionals must find and coordinate with the right people within the organizational structure to succeed. Communicate with the unit you are replacing as early and as often as possible.

The above breakdown of Space Force Enhancement shows that the corps and division G2 and G6 staffs understand and accept the Space-related portion of their function as just another necessary function. The fact that the capabilities depend on something in orbit are justifiably transparent for most cases.

Requirements for the SSE were also driven by the fact that Space support to Operation New Dawn was conducted in a mature theater. It is important to note that staff officers – to include FA40s – may be operational generalists or functional experts from a training and personnel management perspective. However, when the expertise does not match the requirement for an organization, a staff officer should develop expertise and assume roles that are critical for his or her unit. These facts are universal. This is specifically why so many FA40s have developed high levels of expertise in IJSTO and ACCM or been assigned to generalist position, such as a division liaison to its higher headquarters. This fact is a testament to the quality of the FA40, as well as the strength of the Army officer corps.

From this perspective, the Space professional community should avoid trying to organize as an operations career field force. The Space professional doesn't need a widget or daily Space action to be relevant – they are part of staffs which help commanders solve problems. Space professionals solve problems by providing Space expertise.

The importance of staff interaction cannot be overemphasized. However, it is important to note that interaction with fellow division SSEs is just as invaluable. Aside from participating in regular Space and special programs Video Teleconferences, the division and corps SSE chiefs routinely corresponded with each other on all aspects of the job. Each individual brought unique experiences, pulled together, and shared ideas, products, and information to assist each other in any way possible in executing their respective unit missions. Reaching out to fellow SSEs did not stop at the IJOA boundary. The SSE from 1st Cavalry Division (CD) at Fort Hood, Texas, provided invaluable assistance to 4th Infantry Division (ID) SSE by assisting with the train-up and indoctrination requirements for key personnel from 2nd Brigade Combat Team 1st Cavalry Division prior to their deployment to U.S. Division-North. Their assistance saved valuable time, and facilitated a seamless Relief In Place/Transfer of Authority between 2nd/25th ID and 2nd/1st CD as they assumed their mission as one of USD-North's Advise and Assist Brigades.

Lessons Learned

- Success is as much personality driven as any capability you can provide. Space professionals must find and coordinate with the right people within the organizational structure to succeed. Communicate with the unit you are replacing as early and as often as possible.
- Create an Standard Operating Procedure and continuity book for your successors. It is important to capture the lessons you have learned and pass them on. The SOP can be modified as needed, and becomes a living document to assist the Space community.
- While in garrison, take advantage of as many training and schooling opportunities as possible. The Space and Missile Defense Battle Lab Futures and Wargames section participates in a series of wargames and seminars each year. Attendance at some of these events enhances the Space professional's basic knowledge of available systems and encourages non-standard solutions to complex scenarios. This serves the FA40 well during a deployment. It also provides the Battle Lab with current and relevant experience to direct their programs.
- Network amongst peers.

Current vs. Future Fight

As mentioned earlier, Operation New Dawn was conducted in a mature theater and in a threat environment with low probability of insurgent access to counter-Space systems. This will not always be the case. As adversaries gain more and more access to the electromagnetic spectrum and Space is normalized, the vulnerability of U.S. Army reliance on Space assets becomes more apparent. Knowledge and employment of Space protection systems are only partial solutions. Operations in a contested Space domain will not result in the assured capabilities most U.S. forces currently enjoy. In lieu of the traditional blue-on-blue interference, we will also face issues from grey and red systems. This may degrade communications, ISR, and precision engagement. A thorough link and node analysis may take some time to conduct, but the results will provide U.S. forces a basic architecture from which to troubleshoot.

Another area requiring examination is the SSE force structure. The lieutenant colonel billet must continue to be filled with experienced, senior FA40s, primarily to ensure that the headquarters is effective. But, the seasoned FA40 also benefits junior FA40s with mentoring. The changes to some of the SSE positions from major to captain, combined with the





U.S. and Iraqi military partnerships provide a broader perspective for the future.

four-year career field designation, will require assessing a true career model that describes how to achieve success and where SSE service fits into success.

Closing

The beginning of this article described three options for the future of Army Space: hold what we have, modify force structure within the Space construct, or look at where Space broadly fits into our Army formations with other enabling career fields. While this article did not address these options directly, it did provide a necessary discussion about integrating Space in Army operations – a background that is necessary for taking things forward. A final consideration is this: To date, 4,481 Americans have given their lives in military operations in Iraq. Concepts for the Army Space Cadre, Army Space Support Teams and Space Support Elements were forged and tested during eight years of combat and stability operations in Iraq. They were weighed, measured and tested – the

contributions are unquestionably invaluable to our Army's exceptional success.

As Operation New Dawn ends, it is appropriate for our Army and USASMDC/ARSTRAT to conduct a holistic, “pitot tube to tail rotor,” “soup to nuts” assessment of Army Space activities to ensure we are trained, organized, and equipped to support the next challenge. As our Army adapts for the future in support of combined arms maneuver and wide area security missions, so must Army Space. The Army must understand its requirements for Space based assets and Space forces in support of full spectrum operations. Yogi Berra said it best—“If you don't know where you are going, you might wind up someplace else.” We have come too far to drown in irrelevance – now is the perfect time to comprehensively review the Army Space enterprise and prepare for the future.

UNITED STATES & AUSTRALIA

LTG Richard P. Formica, and MAJGEN Mike Milford speak with Corporal David Boucaut (RAAF) at the opening of the Wideband Satellite Communications Operation Center in Wahiawa, HI.



An Old Alliance, Fortified through SATCOM

STORY BY WGCDD (05), RAAF,
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The United States (US) and Australia (AUS) have been allies for a very long time.

“Australia is in fact the only country that has participated side by side with the United States in every conflict of any degree in which the United States has been involved since we first fought together at the Battle of Hamel on the Fourth of July in 1918.”¹

The alliance between the two countries is fortified on, amongst other things, the basis of closely-shared cultural ideals, a profound belief in a democratic system of government and a genuine desire to share the burden of ensuring that our way of life is safeguarded from those who would otherwise see us fall. The foundation of this close relationship is codified in formal agreements such as the AUS, New Zealand (NZ), US (ANZUS) Security Treaty.

The ANZUS Treaty:

“was signed in San Francisco, Calif., on Sept. 1, 1951, for the purpose of providing mutual aid in the event of aggression and for settling disputes by peaceful means. It came into force in 1952. The three countries’ initials provided the acronyms for the treaty and the organization that grew out of it. The United States offered the pact to Australia as compensation for the prospect of Japanese rearmament. Under the terms of the treaty, the three nations maintain a consultative relationship with each other and strive to ensure their collective security in the Pacific region.”²

However, to date the treaty has been invoked beyond the Pacific region – for example, it was invoked shortly after 11 Sep 2001 by Prime Minister Howard (Prime Minister of Australia 1996-2007) as an international statement that Australia was standing ready to cooperate within the limits of its capability concerning any response that the United States may regard as necessary³. Hence, ANZUS was the political force behind AUS’s involvement in both Gulf Wars and in Afghanistan:

“Australia made a point of using ANZUS to justify sending troops to Afghanistan, ... Shortly afterwards, Howard sent Australian troops and bombers into Iraq...”⁴

Interestingly, to date AUS has been the largest participating, non-NATO ally in Afghanistan⁵.

Consequently, AUS’ and military forces conduct a variety of Joint activities including Military Exercises (e.g. Talisman Sabre 2011) and operate several joint defense facilities in AUS associated with things such as Intelligence⁶ and Satellite Communications (SATCOM). As a benefit of the strong relationship and the need to ensure that the two countries employ compatible and interoperable capabilities in operations, the US and AUS also share military technology through numerous cooperative arrangements such as US Foreign Military Sales programs (e.g. Joint Strike Fighter, C-17, CREW Vehicle Receiver Jammer, etc.) and joint partnerships such as the Wideband Global SATCOM (WGS) program. The US-AUS WGS partnership is the focus of the remainder of this article.

In November 2007, the US and AUS entered into a Memorandum of Understanding (MoU) to:

“cooperatively enhance the WGS System through addition of an AS-funded, sixth satellite (including all required activities) to provide to each Participant, Assured Access to worldwide SATCOM resources for their national use over the operational life of the constellation, commensurate with each Participant’s contribution.”⁷

For the US, it meant there was an opportunity to procure a sixth WGS satellite prior to the expiration of its contract option with Boeing and increase the WGS constellation resulting in much-needed additional SATCOM capacity. This was very significant for the US Warfighter because only five had been approved for procurement by the US Government at that time. For AUS, it provided a global SATCOM capability in military X-band



Corporal David Boucaut (RAAF) is a CPP with D Company, 53rd Signal Battalion at WSOC Wahiawa.

and Ka-band , that met AUS’ increasing SATCOM requirements. Based on AUS’ reliance on the OPTUS-C1 satellite for its X-band and Ka-band coverage within the Australasian region as well as its dependence on various commercial SATCOM and legacy US MILSATCOM systems (where agreements were in place), the WGS MoU represented a significant increase in the Australian Defence Force’s (ADF) SATCOM capability with major global, operational implications,

“permitting the ADF to conduct multiple and simultaneous military operations independently or as part of a coalition force via secure and reliable SATCOM, available to deployed forces, operational command and Australian headquarters.”⁸

The undertaking from the AUS perspective is approximately a \$1 Billion investment and is anticipated to further strengthen the AUS-US alliance by enhancing, “the close ties and high level of cooperation that already exists between AUS and US defense force personnel.”⁹ Under this MOU, AS is responsible for funding the procurement and life cycle costs of adding a sixth WGS satellite, the associated launch services, and costs associated with connectivity. However, this should be framed as a financial contribution to the cost of the constellation; that is, it would be a mistake to associate the AUS investment with AUS ownership of WGS-6. AUS’ investment entitles it to shared use of the entire WGS constellation commensurate with its investment – the US still owns and operates the WGS system in total.

Also, AUS was given the prospect to place and fund personnel – as Cooperative Project Personnel (CPP) – in the Acquisition Project Office (APO), Operational Project Office (OPO), and Operations Centers, including the Global SATCOM Support Center, the Regional SATCOM Support Centers, and the Wideband SATCOM Operations Centers (WSOCs). Hence, to date AUS has placed ten CPPs in the US as a result of the MoU. One, an O4, is in the J66 in STRATCOM at Offutt, Nebraska. There are two CPPs in Colorado Springs; an O5 in the SATCOM Division Staff and a GS-14 (00391) equivalent (AUS Public Servant - APS) in the Wideband Branch of SATCOM Division. In Hawaii, there are two CPPs in the RSSC-PAC at Wheeler AFB, an O3 and an E6. Finally, there are five more CPPs in the WSOC at Wahiawa working within D Co., 53rd SIG BN, an E8, an E6 and three E5s. By 2013, the number of AUS CPPs will total sixteen;

fifteen of whom will work for USASMDC/ARSTRAT (note: the yet-to-arrive, six CPPs will all PCS to the WSOC at Wahiawa).

CPPs are defined in AR 380-10 as, “foreign government personnel assigned to a multinational program office hosted by the Department of the Army...for the purpose of carrying out a multinational project or program.”¹⁰ CPPs are not foreign government liaison officers or observers; they report to and take direction from their host nation (US) supervisor — although they may act from time to time on behalf of their respective country if authorized in writing. The benefit of this arrangement is twofold; the US is provided with cost-free resources to contribute to joint US-AUS WGS objectives and AUS is afforded the opportunity for its personnel to gain much-needed space/SATCOM experience; something that can be leveraged by the Australian Defence Organisation (ADO) when CPPs eventually PCS back to AUS.

The inclusion of AUS CPPs in USASMDC/ARSTRAT’s daily-business is a relatively new endeavor for the Command. In order meet the objectives of the US-AUS WGS MoU, the Commanding General’s intent, through the G3, promulgated OPORD 07-11 (Integration of AUS CPP Personnel),

“to integrate all assigned AUS CPPs as embedded USASMDC/ARSTRAT staff as soon as possible from their time of arrival, to make maximum use of the knowledge and skills they bring to the command... and that all possible Wideband SATCOM planning and operations be conducted as REL to USA, AUS and that US-only Wideband planning and operations be conducted by exception.”¹¹

The OPORD acknowledges that the MoU represents a partnership of approximately 22 more years over which time AUS CPPs will be a part of USASMDC/ARSTRAT. Consequently, G-3 is coordinating development of a Concept of Operations and Tactics, Techniques, and Procedures (TTP) to successfully integrate AUS DoD members into the Command.

Since the arrival of the first AUS CPPs in 2009, USASMDC/ARSTRAT has made

increasing strides to integrate CPPs. In fact, it has been openly reported that the CPPs in D Co., 53rd SIG BN (WSOC at Wahiawa, HI) are very well integrated and are highly respected and productive members of D Co. Additionally, recent break-throughs regarding other objectives of OPORD 07-11 will see CPPs participate in even more WGS activities throughout the Command and with other external-to-the-Command stakeholders. The partnership is blossoming and the intent of the MoU is being realized more and more every day.

The launch of WGS-4 is scheduled in the first quarter of 2012, followed closely by WGS-5 (Oct 2012) and WGS-6 (Mar 2013). Furthermore, the US is funding additional increases to the WGS constellation through procurement and life-cycle costs for WGS-7 and WGS-8. The US is also finalizing new partnerships with other close allies to jointly procure WGS-9. These increases to the WGS constellation will make WGS an even more powerful communications-enabler, globally for Military Operations. Additionally, lessons learned from the AUS-US partnership, such as how SATCOM entitlements for the partners are to be determined and how SATCOM resources are to be managed in congested joint operations areas, will be readily applied in the new arrangement.

The relationship between the US and AUS is cherished by both nations and extends back in time, and is forged in blood. The WGS program is just one example of many, where the friendship and dedication to each other has resulted in a whole that is greater than the sum of its parts. AUS and US both benefit by cooperatively participating this technologically superior and imminently capable WGS SATCOM program. Through continued cooperation and support of this program, we will prolong each other’s ability to better enable our national and coalition military operations, globally. By means of employment of advanced SATCOM capabilities, we will be better able to protect our way of life, effectively provide aid to those in need and further fortify our already strong and loyal relationship to one another.

footnotes

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³ Government Invokes ANZUS Treaty - Prime Minister’s Press Conference, September 14, 2001, <http://www.australianpolitics.com/foreign/anzus/01-09-14anzus-invoked.shtml>, website accessed 30 Jun 2011.

⁴ ANZUS Alliance, <http://www.bbc.co.uk/dna/h2g2/A5648998>, website accessed 30 Jun 2011.

⁵ Note: on 9 June 2011, Georgia’s Defence Minister Bacho Akhalaia confirmed his country’s willingness to increase its military contingent in Afghanistan... from its current contingent of 925 personnel with another battalion of 725 soldiers as of 2012... which will make Georgian forces larger in number than the current largest non-NATO contingent, that of 1550 Australian soldiers. Article from: EASTWEEK, Analytical Newsletter for Eastern Europe, Russia, Caucasus and Central Asia, Issue 21 (256), 17 June 2011, published by Centre for Eastern Studies, p.7.

⁶ For more information about the intelligence relationship between Australia and the U.S.A., refer: The U.S. – Australian Intelligence Relationship, PAX Americana Institute; Policy Department, by Drew Davis, Executive Director, PAX Americana Institute, Spring 2009.

⁷ Memorandum of Understanding between the Department of Defense of the United States of America and the Department of Defence of Australia concerning joint production, operations, and support of Wideband Global Satellite Communications, dated 14 November 2007, p.7.

⁸ Australia To Join With United States In Defence Global Satellite Communications Capability, dated 09 Oct 07 Canberra, Australia (SPX), http://www.spacewar.com/reports/Australia_To_Join_With_United_States_In_Defence_Global_Satellite_Communications_Capability_999.html accessed on 21 June 2011

⁹ *ibid.*

¹⁰ Definition of Cooperative Program Personnel, AR 380-10 • 22 June 2005, p. 78.

¹¹ USASMDC/ARSTRAT OPORD 11-07 (Integration of Australian CPP Personnel), dated 252300ZJAN2011, p.4.



Figure 1: The Singtel/Optus C1 Satellite

A NEW X AND KA BAND SATELLITE CAPABILITY FOR THE AUSTRALIAN DEFENCE FORCE

COURTESY OF DEFENCE SCIENCE & TECHNOLOGY ORGANIZATION

The Australian Defence Force (ADF) has both X- (~7 to 8 GHz) and Ka-band (~20 GHz and ~30 GHz) capabilities on the Singtel/Optus C1 satellite (Figure 1). The ADF would like to exploit both capabilities, but the current land and marine satellite terminals (i.e. antennas) do not include Ka-band. Accordingly the ADF would like to upgrade their satellite terminals to be able to operate simultaneously at X- and Ka-band to minimise duplication with equipment and personnel. The ADF has contracted the Defence Science & Technology Organisation (DSTO) and the CSIRO to provide a new X/Ka-band capability for one of its existing mobile land terminals (the PARRAKEET – Figure 2).

During the initial design study several feed configurations were considered but the final design approach employs a coaxial structure (Figures 3 and 4) which was designed and optimised using both CSIRO proprietary and commercial electromagnetic analysis software. The new design provides for optimum performance in both X and Ka bands from one antenna, giving an equivalent performance of two single band antennas.



Figure 2: The PARAKEET terminal

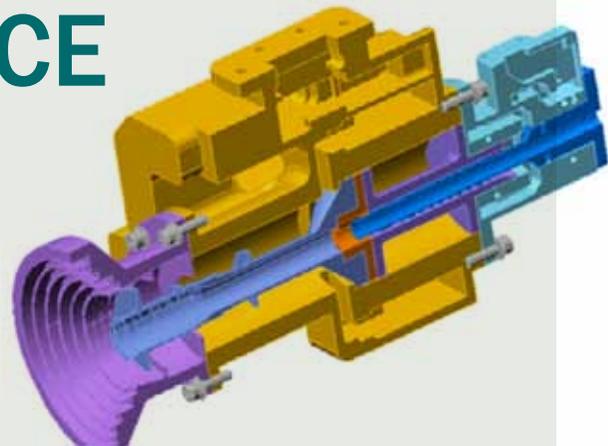


Figure 3: Cross sectional view of the coaxial feed

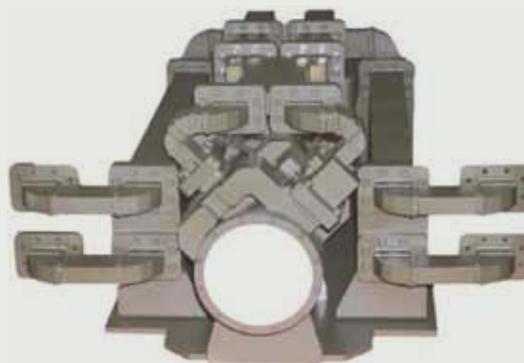


Figure 4: The X/Ka-band feed chain

SPACE SYSTEMS

Provide an Edge In Australia - U.S. Exercise

BY MSG CORINE LOMBARDO, NEW YORK ARMY NATIONAL GUARD



Space systems give an edge to the commanders of Soldiers such as Australian Pvt. Brendan Venables, a member of Northwest Mobile Force, Northern Australia, and SPC Jason Gutshall, a Maryland National Guard Soldier from Charlie Company, 1st Battalion, 158th Long Range Surveillance Cavalry in Hagerstown, Md.

Photos by MSG Corine Lombardo



For American and Australian Soldiers taking part in Exercise Talisman Sabre, satellites can make the difference between winning or losing.

“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,” Henderson stressed.

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, to name a few, Henderson said.

Talisman Sabre is a biennial training exercise designed to bring the different branches of the U.S. and Australian militaries together in a combined environment to train and enhance their combined and joint war-fighting skills.

As a combined joint task force, roughly 14,000 U.S. and 9,000 Australian military personnel conducted maritime, land, and air operations exercises July 11-29.

Satellite and Space technologies have a wide range of application, not only as an asset to commanders on the ground in a combat environment and pilots in the air, but also for emergency and humanitarian assistance.

Before a commander can decide which contingent of troops will descend to the east or if they will fan out on a western ridge or which tank formation is chosen to mount a

“The exchange of this technology with our Australian counterparts through Talisman Sabre has helped demonstrate the need for this asset in a combined ground force campaign”

— MAJ Courtney Henderson

direct assault, he needs to ensure the terrain will support the movement.

Satellite imagery allows him to know in advance if a riverbed is flooding or an area is experiencing extreme drought conditions, both of which have a huge impact on a commander's decisions.

A significant asset is the ability to use current imagery to visualize and assess battle damage using computer images rather than sending personnel and aircraft to determine how effective weapons systems were.

“These systems enhance timing, effectiveness, and efficiency for commanders in the air as well as on the ground,” said Squadron Leader Steven Henry from the Australian Defence Forces Air and Space Operations Center, Headquarters, Joint Operations Command.

“Whether it's the navigation system in a cockpit or a locator beacon during a search and rescue mission, they are critical to our success,” Henry said.

Understanding these capabilities and interpreting the data that's collected is no easy task.

Army Space Support Teams, or ARSSTs, from the 1st Space Brigade continually monitor satellite conditions, locations, atmospheric weather conditions, and environmental factors, such as solar flares, that may impact their systems' ability to collect or send information.

Teams provide a tailored support package of personnel and equipment including six members, two officers and four enlisted Soldiers, each specializing in his or her own fields; from communications, intelligence, and computer technology to topographic analysis.

Soldiers undergo months of additional training that

focuses on Space-related knowledge and skills.

“What makes us unique is that every one of our Soldiers can step in and perform any function on the team,” said 1SG Chuck Meens, 1158th Space Company, Colorado National Guard, Colorado Springs, Colo.

These highly trained teams use their skills and various systems to advise a commander on precision engagements, geospatial intelligence, and environmental effects on satellite communications and imaging capabilities, said MAJ Joseph Paladino, commander of the Colorado Army National Guard's 217th Space Company, Colorado Springs, Colo.

This is the first time Space Operations have been fully integrated in a Talisman Sabre exercise, with components from the U.S. Army and Air Force and the Royal Australian Air Force.

“The ARSST has been a huge benefit in demonstrating Space operations capabilities,” Henderson said. “The exchange of this technology with our Australian counterparts through Talisman Sabre has helped demonstrate the need for this asset in a combined ground force campaign. Theater security cooperation is a major initiative for U.S. Army, Pacific. The relationships we are building and the exchange of information we receive is essential to providing Space Operations professional training and development, which we foresee going beyond this exercise.”

“Space Operations is relatively new to the Australian Defence Forces. We have a limited number of personnel at this point, so the training and experience we gain from U.S. Army, Pacific is critical to our development,” Henry said.



A sapper from Australia's 1st Combat Engineers Regiment, 1st Field Squadron, 2nd Troop plants a block of explosives to cut through a metal structure during Talisman Sabre 2011. Talisman Sabre 11 is a biennial training event aimed at improving and validating the Australian Defense Force and the United States combat readiness and interoperability as a joint task force. *U.S. Navy photo by Mass Communication Specialist 1st Class Woody Paschall*

AUSSIES & YANKS

Pacific Space Support Element Reaches Three Goals in Exercise

BY MAJ THOMAS PUGSLEY, MAJ COURTNEY HENDERSON, CAPT. ROBERT MCCONNELL, AND SQUADRON LEADER STEVE HENRY



Members of the U.S. Army Pacific Space Support Element, U.S. Air Force Pacific and Army Space Support Team #23 join their Australian colleagues at the Australian Defence Forces Headquarters Joint Operations Command Air and Space Operations Centre during Exercise Talisman Sabre 2011. Photo by MSG Corine Lombardo from the NY ARNG

Last summer the U.S. Army Pacific (USARPAC) Space Support Element participated in the multinational training exercise Talisman Sabre 11 with support from an Army Space Support Team. The exercise was designed to practice Combined Joint Task Force operations in a high-end warfighting environment in order to improve combat readiness, enhance interoperability, and test emerging capabilities.

The Australian-hosted biennial exercise is one of the largest such exercises in the Pacific region and included more than 35,000 U.S. and Australian forces participating throughout the entire theater. Because Space was to play a more significant role in this year's exercise, Space forces from both the U.S. Army and Air Force were asked to reinforce the newly formed Australian Joint Space Operations Cell (JSOC), which officially stood up in June 2010.

Why would a theater Army Space Support Element (SSE) take part in such an exercise? Simply put, doing so met many of our primary objectives. First, the exercise allowed U.S. forces to support the development of an ally's Space capability and assist the newly formed Australian Space cadre in supporting the Combined Air and Space Operations Center. Second, the exercise gave us the opportunity to support the USARPAC Theater Security Cooperation Plan (TSCP) goals by further developing relationships with one of America's closest allies. Third, the exercise allowed the USARPAC SSE to exercise its Title 10 responsibilities. And finally, it gave us the opportunity to develop Tactics, Techniques, and Procedures (TTPs) and Standard Operating Procedures (SOPs) in support of an expanded role in current operations in the USARPAC Main Command Post.

While the use of an SSE and an Army Space Support Team (ARSST) in support of a foreign Space element, specifically an Air and Space Operations Center (AOC), is not doctrinal, the exercise provided great utility and value to both the U.S. Space forces and the Australians. The overall results had a much greater impact than we had expected and reinforced one key fact: For SSEs to remain relevant they need to be flexible and able to adapt and integrate into any headquarters element where there is a need for Space expertise. But before we get to the specifics of the exercise, let's look quickly at the road that brought a the-

ater Army SSE and an ARSST to augment the JSOC, the highest echelon Space operations organization within the Australian Defense Forces.

Background

Space integration into Talisman Sabre 11 started simply enough. Following after-action review comments from exercise Schriever 2010, the need to help bolster the Space operations capability of the Australian Defense Forces was identified. This need, coupled with the requirement for the USARPAC SSE to seek out opportunities to integrate Space into theater-wide activities in the U.S. Pacific Command region in support of its TSCP, led to a mutually beneficial situation. Using the pre-existing bilateral Talisman Sabre exercises as a vehicle, the USARPAC SSE presented a plan to integrate a more robust Space support package in support of the Australians. This would facilitate fulfilling theater Army functions by executing the TSCP as well as helping foster a more robust Space and Space activities relationship with a top ally. The two were mutually beneficial, and the plan was approved by the Australians who were specifically interested in the prospect of U.S. support and augmentation to their newly formed Joint Space Operations Cell.

The SSE then approached the PACOM Director of Space Forces (DS4) and asked if the Pacific Air Forces, who were already involved in the planning process for the exercise, would be interested in supplementing the U.S. Army Space personnel augmenting the Australian JSOC, and they accepted, putting the full weight of the DS4 behind the exercise. From that point forward, plans were set in motion for the first-ever Combined Space Operations Cell providing Space-specific support to a Combined Air and Space Operations Center.

The Exercise

The 2011 iteration of Talisman Sabre provided many firsts with regard to U.S. and Australian relationships. First, it was an inaugural opportunity for collaboration between Pacific Air Forces, U.S. Army Pacific, and Australian Defense Forces (ADF) Space personnel into a single combined Space cell. In Talisman Sabre 2009, only U.S. Air Force Space personnel worked alongside

ARSST facilitated successful planning and integration of Space mission areas ...

AUTHOR BIOS

MAJ Thomas Pugsley is the USARPAC SSE training and exercises officer. He provides current operations support to the Main Command Post, the Space integration and planning of all USARPAC-supported exercises, as well as the planning, coordination, and execution of Space support to Army forces in the Pacific theater.

MAJ Courtney Henderson is the USARPAC SSE training and exercises officer. He provides current operations support to the Main Command Post, the Space integration and planning of all USARPAC-supported exercises, as well as the planning, coordination, and execution of Space support to Army forces in the Pacific theater.

ADF personnel to provide Space support, and at a much reduced level. The diverse grouping of Space personnel for this year's exercise from across the services provided valuable lessons for all parties involved. Simply put, this was possibly the best integration of Space into Combined Force Air Component Command (CFACC) planning ever seen during a non-U.S. exercise.

Integration of an Army Space Support Team in support to the CFACC – critical to the overall success of the exercise – was another successful first for Talisman Sabre. The ARSST provided a broad base of capabilities focused on maintaining Space situational awareness, producing daily products that supported strike planning and timing, and providing communications and reach back to supporting organizations. The ARSST facilitated successful planning and integration of Space mission areas into planning by providing navigation accuracy plots and satellite modeling. This allowed the SSE and Air Force Space personnel to focus on current and future operations planning, staff integration, participation in various key working groups, and produce and execute general officer-level decision briefings. Without these products or support from the ARSST, the Space team's input into CFACC planning process would have been greatly reduced.

The ADF Space personnel's establishment of a permanent position on the AOC operations floor for a Space duty officer marked another first. This is a significant step, and a sign that the ADF is beginning to take Space impacts on operations seriously. Unfortunately, prior to the execution of Talisman Sabre 2011, no SOPs or TTPs existed for this position, and the Space team was forced to develop and refine SOPs and TTPs during the course of the exercise. This was deemed a "huge success" by the PACOM DS4, Col. Alan Rebholz, USAF, who was in attendance for the exercise as the night AOC director. Having helped develop the SOPs and TTPs, the USARPAC SSE member who recently was tasked with standing up a similar Space duty officer position on the USARPAC Main Command Post floor used these documents as the basis for refining his own SOPs and TTPs.

Another critical first came from an Australian Air Force officer, Squadron Leader Steve Henry, acting as the DS4 for the exercise. He organized spin-up training for all personnel prior to the exercise and directly advised the Joint Force Air

Component Commander (JFACC) throughout the exercise. Additionally, he provided guidance to the Space team, directing day-to-day operations and was personally responsible for the superb integration observed during this execution. A key factor in his success was the availability of the PACOM DS4 and his many years of Space experience as a senior adviser and mentor. This provided the JSOC with a vector and reference point when we found ourselves stuck in the wrong orbit and needing a delta V.

Overall the 2011 exercise for the JSOC was an unparalleled success with a hard-working and well-prepared team accomplishing the many firsts. Combined with competent staff and an efficient battle rhythm, JSOC members were recognized for all their efforts and expertise during the exercise and setting the standard for a Space cell's role in AOC operations. Additionally, the exercise showed how Army Space forces can integrate successfully into any organization to provide Space expertise. All these achievements considered, there were still plenty of lessons learned that must be addressed.

Challenges and Lessons Learned

There were some major challenges pointed out during the execution of Talisman Sabre 2011. While each of these challenges had varying effects on operational capabilities, they all had major impacts that degraded the overall ability of the JSOC to execute its mission. We must take a serious look at the root causes of these issues to be able to address and mitigate them in the future.

The first and most apparent of these issues was the inability to share information. It is hard to fathom how policies make it into place that allow free and open sharing of information at the Top Secret/Special Compartmentalized Information classification level, but also make it nearly impossible to share information at the Secret level. We found that release questions were the single largest roadblock encountered during the exercise. Many of the required products that we produced through the ARSST or requested through the U.S. Joint Space Operations Center or Global Positioning System Operations Center were classified above our ability to share them with the Australians. You would think that this must be some mistake, a bureaucratic blunder, especially with Australian officers and noncommissioned officers working at many of the same

Continued and expanded cooperation at the operational planning level is now necessary in order to increase the opportunities and overall capabilities of both sides.

organizations that produced these products. But it is not, and even after two different presidents, Ronald Reagan (in 1983) and George W. Bush (in 2006), declared that information should flow without hindrance to our closest allies, we still find ourselves in an environment where we can't share the most basic of information freely.

The second challenge we faced was not having an onsite Foreign Disclosure Officer available for the exercise. Though this issue is tied to the first, it is still an item that must and can be addressed while the first is being discussed. The main setback of not having a disclosure officer onsite was that everything had to be sent to an offsite officer for approval before we could officially share the product. This caused delays in the production of time-sensitive information that could have helped in decision points being made during the pre-Master Air Attack Plan process that would affect the air tasking order. There were several instances where we lost the initiative due to non-timely product presentation.

The third challenge was with regards to authorities. While we worked through many of these issues by making some pretty broad assumptions, there are still some important questions left unanswered following this exercise. For example, would ADF personnel acting as the DS4 have the permission to execute Space Coordinating Authority actions? Also, would the coordinating authority be delegated to an Australian Combined/Joint Force Air Component Commander? At the heart of these questions is the relationship an Australian commander and DS4 would have with the U.S. Strategic Command and Joint Functional Component Command for Space (JFCC-Space), and the Australians' ability to get support from the Joint Space Operations Center. Without memorandums of agreement and understanding between Strategic Command and JFCC-Space, there can be no sharing of information due to legislative limits placed upon military and government agencies. The solutions to these questions should be worked out and implemented during planning and execution for the next exercise in 2013, and lessons learned applied to our Space operations relationships with other allies.

Way Forward

The U.S. and Australian governments have a long history of Space cooperation, yet the Space

operations relationship needs to move forward. Both nations worked together across multiple programs for many years. Continued and expanded cooperation at the operational planning level is now necessary in order to increase the opportunities and overall capabilities of both sides. The Australians have been active partners in Space activities with the United States for more than 40 years, and their current integration includes participation in programs such as Overhead Persistent Infrared, missile warning, satellite communication systems (Wideband Global Communications System and UHF), and Space situational awareness opportunities including electro-optical and radar sites in Australia. Yet many more opportunities exist to further refine the relationship between the United States and Australia, but the last few remaining roadblocks must be removed for this to happen. U.S. and Australian national strategies point to the importance of bilateral cooperation in the Space domain to face the challenges of the 21st century. Memorandums of agreement and understanding must be put in place to allow the interaction of U.S. Strategic Command and JFCC-Space with the Australian Defense Forces. These actions need to be taken today and should not be postponed for tomorrow's military leaders to address.

Conclusion

The overall results of the exercise were very promising and further reinforced the knowledge that Space Support Elements, regardless of organizational level, need to remain flexible and able to adapt and integrate into any headquarters element where a need for Space expertise is needed. The intent of Space integration for the Talisman Sabre 2011 exercise was threefold, and all goals were met. This exercise gave U.S. Space forces a chance to assist our Australian partners in developing their fledgling Space cadre; gave the U.S. Army Pacific SSE the opportunity to meet its Theater Security Cooperation Plan goals by developing relationships with global partners; and allowed the SSE to exercise its Title 10 responsibilities. While the use of an SSE or an Army Space Support Team in support of a CFACC Air Operations Center and foreign Space element is not doctrinal, the overall impact on capabilities was without a doubt an exercise of great value to the Australians as well as the U.S. Space forces.

Capt. Robert McConnell, USAF, is the Space and Special Technical Operations strategist for the 613th Air and Space Operations Center. His duties include planning and integrating Space and Special Technical Operations into the Joint Force Air Component Commander's campaign strategy; providing subject-matter expertise for development of the component commander's air and Space strategy, objectives, and courses of action; and synchronizing theater requirements with the Joint Space Operations Center and national agencies.

Squadron Leader Steve Henry, Royal Australian Air Force, is Staff Officer 2-Space in the Headquarters Joint Operations Command Joint Space Operations Cell, in Bungendore, New South Wales. He plans and monitors Space support to Australian operations, exercises, and activities, with a primary focus of developing the Australian Defense Forces' Space capabilities and increasing the level of understanding of Space operations.

The deputy director of operations for NORTHCOM, Air Force Brig. Gen. Kenneth E. Todorov



KNOWING NORTHCOM

Deputy Operations Director Reveals Missile Defense Importance

BY CPT MICHAEL ODGERS,
100TH MISSILE DEFENSE
BRIGADE PUBLIC AFFAIRS

The simplest way of understanding any organization, job, or unit is to first understand who they work for. That will usually go a long way to clarify things. However, when it comes to the complex command relationship of the 100th Missile Defense Brigade and defending the homeland from ballistic missiles, the answer to “who do you work for?” doesn’t give the clarity you would expect.

The brigade’s missile defenders consist of approximately 300 active-duty National Guardsmen located in Colorado, Alaska, and California as well as a small number of regular Army Soldiers. They serve the governors of their respective states, work for U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, and operationally support U.S. Northern Command (NORTHCOM).

The deputy director of operations for NORTHCOM, Air Force Brig. Gen. Kenneth E. Todorov, is very familiar with defending the homeland and how the 100th Missile Defense Brigade and 49th Missile Defense Battalion fulfill a portion of that mission.

“As the supported command, NORTHCOM provides several roles. We are very much focused on the current state of play with the architecture,” said Todorov. “Defending the homeland today, knowing that the Soldiers of the 100th are ready to pull the trigger if the President, the Secretary of Defense, or the NORTHCOM commander asks them to. What is the health and status of the sensors and the interceptors? What is the health and status of the system? What are the indications and warnings of our adversaries? How likely are they to put a threat into the air?”

“We also take interest in the future state of play of the architecture. We work very closely with the Missile Defense Agency and Army Space and Missile Defense Command to look at sensors, shooters, and interceptors and the architecture for future decisions and investments we have to make in order to stay ahead of the threat. There’s a financial role; where do we make the investments? There’s a policy role; where do



we put sensors and shooters? And there's a current operations role; what is the health and status of the system to defend North America?"

The Missile Defense Agency is responsible for research, test, and development of the ballistic missile defense system, as well as delivering an operational system to the Warfighter. USASMDC/ARSTRAT is responsible for providing trained operators. As the supported combatant command, NORTHCOM is concerned about all aspects of the system and its future.

"We have full operational confidence in the systems today, but as threats develop the future of global-based missile defense is going to have to develop as well," Todorov said. "There are a lot of efforts under way at a level above ours here at the combatant command. Efforts are under way with the Office of the Under Secretary of Defense for Policy and the Missile Defense Agency to determine where our investments will be best suited."

USNORTHCOM is the supported combatant command for defense of the contiguous United States, Alaska, and Hawaii. As such, it is the command's job to identify the operational requirements for defense of the United States against intercontinental ballistic missiles. U.S. Northern Command has the responsibility to identify those requirements; the Missile Defense Agency (MDA) develops and fields requisite capabilities.

"With the MDA it's very much a collaborative relationship. Our focuses are different. MDA is the technical experts, the thousand-pound brains out there doing the grunt work and really more focused on the futures decision. And here at NORTHCOM we're primarily focused on current operations," Todorov added. "The two are obviously interwoven. We've got a great working relationship with the MDA. I talk weekly with the deputy director, Rear Adm. Randy Hendrickson. He's very willing to listen to our positions, very willing to make changes to some of their plans and programs based on a combatant commander's needs. And he's always willing to reach out and get our views on things, even with decisions they don't need our opinion on. It's a very collaborative, very cordial, and collegial relationship."

The ground-based mid-course defense system will remain a vital component of the ballistic missile defense system. USNORTHCOM is working closely with the Under Secretary of Defense for Policy and the Missile Defense Agency in developing hedge options ensuring the United States remains ahead of tomorrow's threat.

MDA is scheduled to complete construction of a new interceptor field in Alaska this year to replace the original prototype field. Additionally, the agency is currently funded to construct an interceptor communications site on the East Coast which will improve U.S. defensive capability against any

emergent Middle East threats. MDA will continue to upgrade existing ground-based interceptors and emplace new ones to ensure the United States has the best defensive capabilities possible to defeat intercontinental ballistic missile threats. All of these efforts, coupled with upgrades to the sensor network, will ensure ground-based missile defense remains a viable means of defending the homeland well into the future.

The European Phased Adaptive Approach (EPAA) is an important cooperative effort with European allies, according to Todorov. It will provide protection to them as well as to U.S. forces deployed in the region. EPAA initially focuses on regional protection but expands over time, with the emplacement of additional assets, to provide the foundation that could enable homeland defense against threats from Southwest Asia.

"There have been some misperceptions out there that this shield is to defend Europe. Clearly the initial focus, the initial emphasis on the EPAA has been focused on regional defense of that theater," remarked Todorov. "But as we see our adversaries in Southwest Asia or some rogue nations develop their capabilities, we're more and more concerned that those capabilities might have an impact on the homeland. The EPAA ensures that this is an away game.

"While at the same time we are providing for defense of that theater, if an adversary decides to be bold and fire a missile that can reach the homeland, we can use theater-based architecture to take out that threat. The sooner we can take the threat out the better. Working with our European partners will go a long way in ensuring that."

This phased approach is designed to ensure components of the ballistic missile defense system (i.e., sensors, shooters/interceptors, battle managers, and communications) are delivered ahead of projected threats. This approach allows the United States to incrementally enhance its regional and global ballistic missile defense capabilities. Northern Command will continue to work closely with its counterparts in U.S. European Command to ensure the United States can effectively integrate limited forward-based capabilities in support of the homeland defense mission, said Todorov.

"We have a great relationship in the homeland with the National Guard in general, but to have the Guard here in Colorado, California, and Fort Greely be part of our organization is special," he said. "Overall I am very impressed with the job they do and the relationship we have with the National Guard. They do a phenomenal job executing this mission.

"I'm very proud as a citizen of this nation and as an officer of the military to be part of this mission. I'm continually impressed by the great Soldiers, Sailors, Airmen, Marines, and Civilians involved on the mission end as well as the technical side," said Todorov. "I'm really proud to be a part of it. It will be challenging going forward as threats develop. We've got to stay ahead of them, and I know we will."

MISSILE DEFENSE EXERCISE S

Warfighters Learn Better Communication

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

When it comes to defending the nation from foreign missiles, the units associated with the Ground-based Midcourse Defense System do a great job of being at the ready and making sure that no missile ever gets in range to harm the citizens of the United States.

One of the ways the 100th Missile Defense Brigade ensures its readiness is to take part in a monthly Ballistic Missile Defense Exercise, or BMDX, which involves several entities that stretch from Colorado to Alaska and even the Asian-Pacific region.

“The BMDX is a Navy-specific exercise that we support them in doing,” said WO2 2 Kale Murray, a command and control systems integrator for the 100th brigade. “It is a chance to exercise our real-world communications with the Long Range Surveillance and Tracking ships.”

Within the realm of ballistic missile defense there are typically two types of Navy vessels used: the shooter ships and the tracking ships. Communication between the fire-control operators in Colorado, Fort Greely in Alaska, and these ships is a key element to keeping the skies safe.

To make sure that both the Navy and Army forces work together seamlessly and effectively, there has to be a clear and open line of communication between the two. Since naval personnel in the U.S. Pacific Command and Army personnel in Alaska are so far apart, finding ways to talk to each other is sometimes a challenge. So not only does the language that is used between the two military components need to be the same, a dependable means in which to get that communication across is necessary as well.

“It’s not just a luxury, it’s a requirement for the mission,” said Murray.

An exercise such as this one allows for practice in communicating and gets the two groups closer to their end-state.

“The goal is to have a common operating picture and to have successful engagements,” said Murray. “That’s the bottom line.”

Since this type of training began two years ago, the Soldiers with the 100th brigade have adapted to the ever-changing world of technology and communication. Taking ideas from the Navy, as well as sharing their own, the 100th’s techniques, tactics, and procedures have been refined and the understanding of the two components has grown.

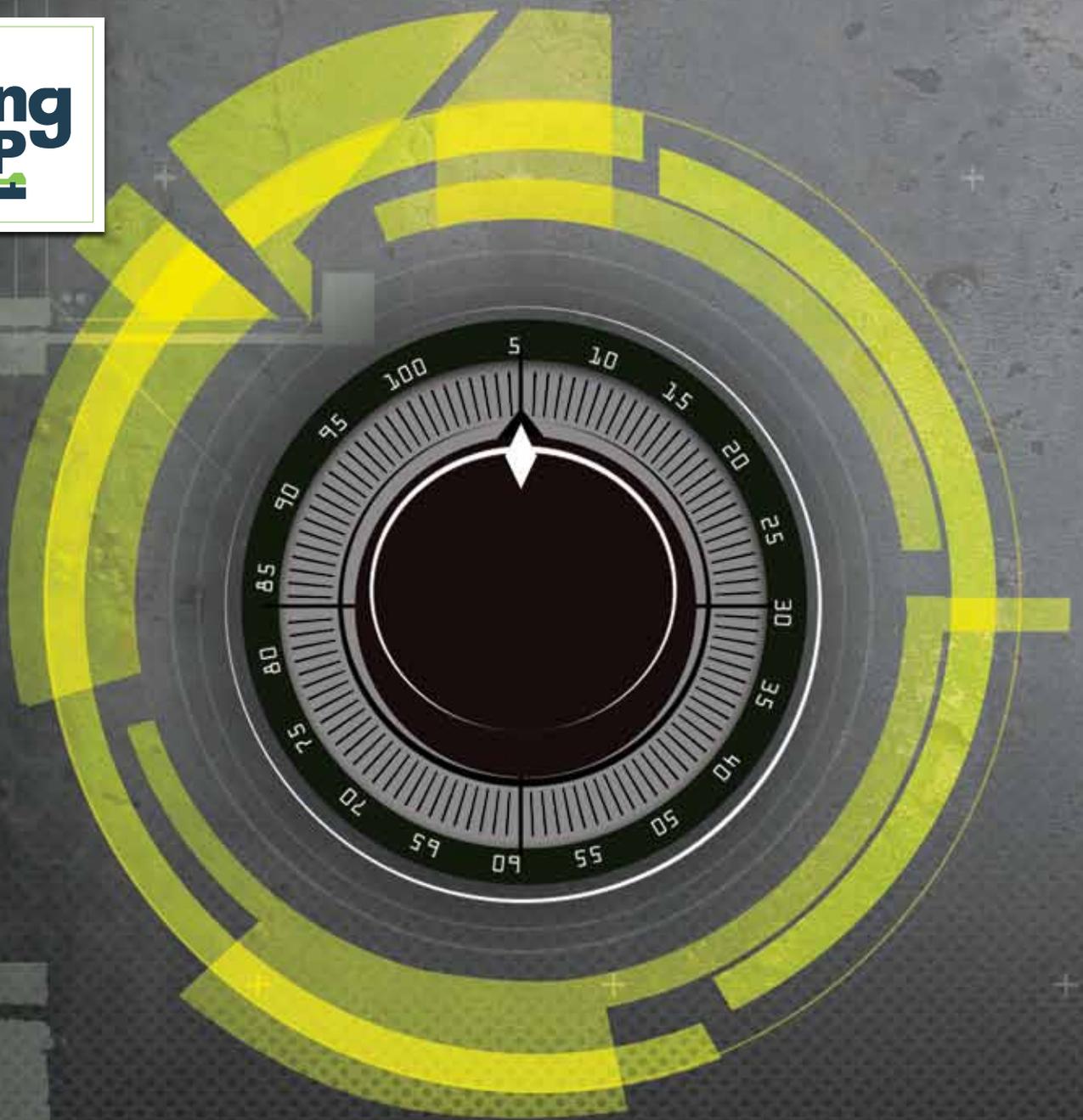
“The evolution of our architecture is an ongoing challenge,” said Murray. “Just like any time you get updates for your phone or even Outlook, there are new bells and whistles that you have to figure out. So, it’s all that figuring out that’s the real challenge.”

The participation of the 100th was recognized by the lead naval officer for the exercise. While debriefing the exercise, 6th Fleet’s lead ballistic missile defense officer, Lt. Cmdr. Jesse Mink, gave a salute to the team for a job well done.

“This was the best training I’ve seen for ballistic missile defense ships. These ships are three to four weeks ahead of where I’ve seen past deployers arriving in the 6th Fleet (area of operation),” said Mink.

SPANS GLOBE





PROTECTING RESEARCH & TECHNOLOGY

PROTECTING SOLDIERS

BY JEFFREY W. BENNETT,
USASMDC/ARSTRAT TECHNOLOGY
PROTECTION OFFICER

On February 12, 2006, the Los Angeles Times reported on the difficulty of fielding a new system to counter improvised explosive devices (IED). The article discussed difficulties in the acquisitions and fielding process, but what transpired next made the thesis moot. Within the article, Mark Mazzetti, the Times staff writer, reported the unique functions of the Joint IED Neutralizer (JIN). According to the description, “A metal boom that extends from the vehicle’s chassis emits high-powered electric pulses – military officials call it ‘man-made lightning’ – that set off the detonators on the bombs. The JIN is a spinoff technology of a larger U.S. government effort to develop energy-based weapons that include lasers, electric shocks, and microwaves.”¹ Less than a week later, insurgents already had a way to counter the JIN.²

Only a small portion of the article discussed JIN’s capabilities; the focus was on problems with fielding. This small mention of capability compromised the technology. In this case, the technology involved was not revolutionary but still needed protection. The contractor’s application of technology proved sensitive. After the article was published, the enemy effectively countered the JIN.

Required Assessments

This disclosure of key performance information may have been in ignorance of Department of Defense (DOD) guidance. The DOD has established guidance that, if correctly applied, will prevent the adversary’s ability to counter or duplicate a system’s unique capability. In Department of Defense Instruction 5200.39, “Critical Program Information (CPI) Protection Within the Department of Defense,” the mission is clear: “To provide uncompromised and secure military systems to the Warfighter by performing comprehensive protection of Critical Program Information (CPI) through the integrated and synchronized application of Counterintelligence, Intelligence, Security, systems engineering, and other defensive countermeasures to mitigate risk. Failure to apply consistent protection of CPI may result in the loss of confidentiality, integrity, or availability of CPI, resulting in the impairment of the Warfighter’s capability and the DOD’s technological superiority.”³

Implementing and directing a research and technology

protection program designed to safeguard technology and its application will enable more successful acquisitions. In the case of research and development, technologies should be assessed properly, and as soon as practical. The government can only expect its defense contractors to protect technologies and programs after they identify what needs protecting and how to protect it.

Assessing Classification Level

This process begins with the original classification authority’s (OCA) determination of whether or not the technology is classified. This process is a deliberate and proactive five-step assessment undertaken by the program manager (PM). If the technology is classified, then the PM builds a security classification guide for the OCA to sign. If the technology is not classified, the assessment is still valid as identified unclassified technical data can be properly protected.

Assessing Unclassified Information and Export-Controlled Information

Controlled unclassified information should be identified for protection to prevent it falling into the wrong hands. Items that are For Official Use Only (FOUO) should be identified as such. Additionally, if FOUO should not be shared outside of contractor or government circles, it should be further identified with Freedom of Information Act (FOIA) exemptions. Without such guidance, technical data could be released upon a simple request. Once released, it becomes public domain and cannot be properly protected.

Under this system, when a FOIA request is made, the OCA reviews the material and determines whether or not unclassified information can be released. If there is no identified FOIA exemption, all FOUO and unclassified information is eligible for release. When documents are marked correctly, FOIA-exempted material also is protected from the requested action. When technologies are not assessed or marked, technical data that should be protected could be released.

Defense contractors, universities, licensees, and grantees should understand specifically which technical data should be protected under Department of State export-control laws. In



a 2004 DOD Inspector General report, surveyed contractors stated that they relied on their contracts to specifically state whether or not government technology should be export controlled.⁴ Uninformed defense contractors could easily, although inadvertently, disclose technical data to foreign entities without authorization.

Another issue with research and development is the discrepancy with how technology is handled between government to contractor versus government to university efforts. In a March 2004 report, the Inspector General for the Department of Commerce noted that, “a course on design and manufacture of high-performance machine tools would not be subject to the EAR (Export Administration Regulations) if taught to foreign nationals as part of a university graduate course. However, this same information, if taught as a proprietary course by a U.S. company to foreign nationals, would require a license because the company does not qualify as an ‘academic institution.’”⁵ When working with universities, the U.S. government should direct exactly how the university will use technical data under the contract and what type of research will be conducted. Depending on the research level, the university should include foreign entities only with the required permissions from the program and the Department of State or Commerce.

Assessing Critical Program Information

The PM should form an integrated protection team with the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command technology protection officer (TPO) to conduct a critical program information assessment (CPIA) to determine whether technologies contain CPI. For acquisitions, the Milestone Decision Authority (MDA) requires the assessment prior to reaching Milestone B.⁶ Where CPI is identified, a program protection plan (PPP) is required and countermeasures are implemented prior to meeting deadlines. The schedule should include time enough to assess for CPI and put in place the requirements of a PPP before Milestone B.

For research and development and pre-systems acquisitions the requirements are less defined; the CPI assessment is to be conducted as early as possible. According to the Department of the Army guidance, if CPI is identified, a PPP must be submitted within nine months of the CPI discovery.⁷ The challenge here is for the technology manager to determine at what point in the research and development process the technology is mature enough to assess.

Great technological advances are not always discovered at

well-established cleared defense contractors with a wealth of policies on how to protect it. Many advancements are made in small uncleared companies where lack of a timely CPIA could place technology in jeopardy. Advanced technology occurs in the most unlikely places. Almost certainly, state-of-the-art technology is created in large defense contractor organizations. Equally, a small contractor’s garage, university lab, or tin building in the middle of an industrial complex provides fertile ground for research. Contract vehicles such as broad area announcements and Small Business Innovative Research (SBIR) provide opportunities for the government to benefit from the levels of genius found within entrepreneurs. With that benefit comes the responsibility of the government to help the less-experienced contractor get to the level of security maturity to protect its technology and process.

The SBIR or other small contractor may understand how to protect proprietary information and how to use firewalls and secure e-mail. Many of these organizations are extremely small, however, and without a mature security structure. Small contractors may be a sole proprietor or a small group of scientists dedicated to developing the technology. Without the PM’s involvement, they may not understand the specific threat to the technology or how to develop a company culture to recognize threats and who to report to. Without the PM’s explicit direction, their efforts may fail to properly protect export-controlled, critical, or sensitive technology. In fact, without direction found in contracts or through involvement of knowledgeable government technical representatives, they may not know how to protect it.

Technology is extremely vulnerable during the research and development phase. Proper and required CPIA mitigate vulnerabilities. To wait until the technology transfers into the acquisitions phase could be too late. An adversary’s discovery of sensitive, export-controlled, or critical program information before it is even assessed could doom a technology’s development. The impact may not even be discovered until later in the production or fielding phases.

When to Assess

In contrast, a technology manager’s early CPIA is non-intrusive and should be conducted as early as possible. The benefit of assessing early is understanding how to protect the technology when it proves successful. The CPIA findings could contain statements indicating that the technology could become classified, contain export-controlled information, or could contain CPI should the research prove successful. In other words, the

Identifying technical data and how to protect it gives technologies a fighting chance to be developed without being compromised.

research and development efforts related to the technology can still be protected in the event that a breakthrough occurs.

The result of an early assessment is a clear understanding between the government and the contractor that the technology development should continue with focus on protecting the CPI. The PM and TPO can help the contractor with countermeasures as well as recommend Department of Defense, Federal Bureau of Investigation, and other available counterintelligence assistance. These assessments will help get the contractor to the level of maturity displayed at larger and more experienced defense contractors.

Providing Proper Oversight

Identifying technical data and how to protect it gives technologies a fighting chance to be developed without being compromised. Protection mitigates risk of unauthorized disclosure that occurs through security or export-control violations. Government Contracting Officer Technical Representatives/Contracting Officer Representatives/Contracting Officers (COTR/COR/KO) often take the lead on developing research and technology. Depending on their experience level, progress should be monitored by more-experienced contract officers to ensure that the technology is assessed. Without the oversight, it might not get done. When assigned as the technology lead, part of the COTR/COR/KO training should be the five-step OCA process.

Why should research and development efforts put so much effort into oversight? Here is why: Unlike research and development and pre-systems acquisitions, full acquisition programs are regulated by a Milestone Decision Authority that ensures this assessment takes place. During any phase of acquisitions, milestone requirements must be met prior to the technology advancing to the next phase. The assessments are required and progress is monitored. Pre-systems acquisitions and research and development items do not always fall under an MDA's purview, however. Commands working with pre-systems acquisitions should develop their own internal MDA to ensure CPI assessments are conducted.

The incident with the Joint IED Neutralizer could have been prevented. The JIN article may very well have gone through an official public release process. Without the proper identification of sensitive, export-controlled, or technical data, however, the reviewers could not understand what would need protection. The technical managers and subject-matter experts should determine and identify technical data needing protection. Until that is done, programs are at risk before the acquisitions process even begins.

Biography

Jeff Bennett is the G-2 research and technology protection officer for U.S. Army Space and Missile Defense Command/Army Forces Strategic Command in Huntsville, Ala. He retired from the Army in 2005 after serving in numerous command and staff positions in the United States and Germany. He previously worked as a facility security officer for a defense contractor and is a published author of security certification books.

Footnotes

¹ Mark Mazzetti, "Bomb Buster for Iraq Hits Pentagon Snag," *Los Angeles Times*, February 12, 2006.

² Rick Atkinson, "When 'Physics Gets in the Way,'" *Washington Post*, October 2, 2007, p.A13.

³ Department of Defense Instruction 5200.39, "Critical Program Information (CPI) Protection Within the Department of Defense," July 16, 2008, p. 2.

⁴ *Export-Controlled Technology at Contractor, University, and Federally Funded Research and Development Center Facilities* (Arlington, Va.: Department of Defense, Office of the Inspector General, 2004).

⁵ *Deemed Export Controls May Not Stop the Transfer of Sensitive Technology to Foreign Nationals in the U.S.* (Washington, D.C.: Department of Commerce, Office of Inspections and Program Evaluations, 2004).

⁶ Department of Defense Instruction 5200.39.

⁷ Department of the Army Pamphlet 70-3, "Army Acquisition Procedures," Jan. 28, 2008.

SPACE SUPPORT EUROPEAN SUPPORT

Support Element Chief Highlights Challenges, Joint Operations

INTERVIEW AND PHOTOS
BY RACHEL L. GRIFFITH,
USASMDC/ARSTRAT
PUBLIC AFFAIRS

During Austere Challenge/Global Lightning 2011, the 1st Space Brigade sent Soldiers to Germany to support the exercise. The Army Space Journal spoke with COL Robert “Buff” Bruce, chief of the Space Support Element for U.S. Army Europe, about what support the Army Space community is providing to the European region. Below are his remarks.

What are some of the challenges you face while providing Space support to the Warfighter?

BRUCE We’ve got a limited amount of forces over here. We have four brigade combat teams, a number of brigade-sized enabler formations. In that I don’t have any Functional Area 40 Space Operations officers assigned to them. We have a Space Support Element at the U.S. Army Europe level, one colonel, one lieutenant colonel, and two majors. We were sent over here in 2009 to establish the first Space Support Element in the U.S. Army Europe area of responsibility. We’ve had some previous attempts to do that, but nothing as sustained as what we have right now. We have established ourselves to be able to work across a number of the staff organizations.

The focus on what we do day to day is where do we link into Space; how do we do plans and policies; where is the Army perspective on all of those. So we respond back to our combatant commander, U.S. Army Europe, so they understand what we need from the Army here in terms of Army Space support and support from the rest of the U.S. security Space architecture. We integrate into training and exercises not just for the U.S. formation, but we’re also involved in forces that go forward to support the International Security

PORT, STYLE



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COL Robert "Buff" Bruce SECOND FROM LEFT, Chief, Space Support Element, US Army Europe, sits with Mike Connolly, director of the Army Space Personnel Development Office; Brig. Gen Teresa A.H Djuric, Deputy Director, Space and Intelligence Office, Office of the Under Secretary of Defense for Acquisition, Technology and Logistics; and COL Timothy R. Coffin, Deputy Commander for Operations, U.S. Army Space and Missile Defense Command/Army Forces Strategic Command, during the 2011 Space Cadre Symposium.



JTAGS KOREA

STORY BY RACHEL L. GRIFFITH,
USASMDC/ARSTRAT PUBLIC AFFAIRS

The Soldiers assigned to Joint Tactical Ground Station Detachment C, 1st Space Company, 1st Space Battalion stationed at Osan Air Base, Korea maintain 24-hours-a-day, seven-days-a-week operation to provide in-theatre early missile warning support to Soldiers in the United States Army Forces, Korea region and world-wide. Led by Detachment Commander CPT Corey H. Ruckdeschel and Noncommissioned Officer in Charge, SFC Christopher L. Barber, these soldiers have the unique classification of being part of the only in-theater missile warning unit in South Korea.

When the soldiers are not on shift, they perform maintenance on their equipment; conduct individual and collective training and stay up-to-date on all Warrior tasks and drills, all while maintaining their proficiency on their JTAGS mission. The detachment leadership also finds time to fit personal and professional development into the unit's schedule.





Special thanks to the Soldiers pictured in the photos SPC Trenton C. Huntsinger, SPC Jonas L. Knehans, CPL Daniel Romero, SGT Robert D. Marks, SGT Kenneth M. Graw, SPC Brandon Schoen, SFC Christopher L. Barber.



PHOTOS BY RACHEL L. GRIFFITH, CPT COREY H. RUCKDESCHEL & SSG JASON PITRE.

Collectively you're talking about less than ten people working Space day to day in this AOR, but we work together as a team to develop the procedures and the techniques for leveraging the rest of the nation's investment in Space to this AOR, ...



From European Style >> 45

Assistance Force in Afghanistan to make sure they understand what Space capabilities are available to them, how do they access them, and who do they need to talk to when they get into theater. We maintain close communication with the guys in U.S. Central Command both on the Army side and down range so that when these units go into a location they'll already know who is the Space representative that they'll be able to tap into. None of these guys have Space officers, so now they know who to ask if there's a question. Sometimes the units will call back here, so at least they're remembering who we are, and then we can hook them up with the guys in the Central Command theater.

There is room for us to add to that and step in there and bring Space, particularly Army Space, as a part of that when we do our military-to-military engagements with these partner nations. That's providing us lots of opportunities, and we roll that into training and exercises. For Austere Challenge 2011 we're actually exercising one portion of Space with one of our partner nations. So that's Army Space in action.

You work in a primarily joint environment, what do you see as your role?

BRUCE We also get involved in the Joint Capabilities Integration and Development System, and these are the formal products that we use to determine what are the capabilities that need to be developed in the nation. They set out the requirement so we work on the futures piece. As we get into operations those joint urgent operational needs have to be responded to. We help validate the Space portion of that and run that through the system. Then we get into the crisis actions. What's the issue at the moment, how do we respond to it, what's the concern of the joint force commander, what can we do to either answer the concern, or what can we do to get someone else to work it.

Inside the U.S. European Command (EUCOM) area of responsibility (AOR), I tap into the EUCOM element, LTC Sam Russ, he's in charge of Space and Special Technical Operations up there. We haven't had a demand signal for Space in this AOR, in the AOR that has the second largest collection of Space-faring nations outside of North America. We're pretty much letting U.S. Strategic Command and the Department of Defense interact for Space without any input from the geographical combatant commander in charge of this AOR. Whatever Strategic Command and the Office of the Secretary of Defense come up with, we're okay with that. That may have been okay in the past, but it's no longer so in the future. The interactions between the European Space Agency and European Space-faring nations, we're having a tighter relationship with those guys. The combatant commander of EUCOM is working on building partnership capacities.

So your customer base goes far beyond the Army spectrum?

BRUCE We work closely with the designated Space Coordinating Authority in U.S. Air Forces in Europe based out of Ramstein air base. Collectively you're talking about less than ten people working Space day to day in this AOR, but we work together as a team to develop the procedures and the techniques for leveraging the rest of the nation's investment in Space to this AOR, whether it's submitting a Space support request to the Joint Space Operations Center (JSPOC) out at U.S. Strategic Command to bring about Space support effects in a ship movement in one operation or another. And that's pretty interesting when you have to help the Navy.

It's really neat when you get a request from the Navy in Europe that says, "I have a problem with electromagnetic interference. I had it at this port, I'm going to another port, what can you do to help me?" We're working with the U.S. Air Forces in Europe guys to come up with tactics, techniques, and procedures that we've used down range before. Set that in motion with the JSPOC—we coordinate with the EUCOM J6 (Joint communications section) and other respective J6s so we know what we need to do. So when they start to report the interference from the ship, we're all ready to go and have those resources in place focused to help them solve that problem.

Do you support anyone outside of the EUCOM theater?

BRUCE We also provide support to U.S. Army Africa. They do not have a Space Support Element or even a Space officer. They'll get one this summer. For the Combined Joint Task Force-Horn of Africa noncombatant evacuation and repatriation operations (NEO), we began that planning in December. U.S. Army Europe was asked to provide Space assistance. We helped develop the appropriate planning materials, working with each of the staffs to ensure they could take advantage of the latest capabilities we have and

The Space officer is the one who has the broader picture, can see across the staff boundaries, and say here is how I can pull the team together, across the staff to solve a common problem.

in some of the tactics, techniques, and procedures that have been developed over time, so when they go to execute the mission they have the latest and greatest to work with. We set up those capabilities with the JSPOC so if and when the NEO was activated, then we could turn those capabilities on and have a flood of information.

It's the same way with Operation Odyssey Dawn in Libya. We were able to take the basic information, understand what the initial commander's guidance was, but then U.S. Air Forces in Europe pretty much had the lead. You're a sounding board—"does this make sense?" "have you come across this before"—so we come up with a good Concept of Operations that they can integrate into their air tasking order. As the planes are flying, we were able to integrate the Space effects associated with it to facilitate their operations, or to enhance the operations. That's now transitioned into Operation Unified Protector under the NATO hat. It gives us a few more challenges going through NATO because it's a little command system with different authorities, but we have to set the condition for the successful use of Space as well.

Inside this theater, now that we have the Space structure set up, this has given me the freedom to start focusing on those specific Army Space issues in this theater. Whether it's dealing with electromagnetic interference, how do I know that it's going on, how do I locate the source of the disturbance, how do I rectify. That approach has caused a crossed community of support from EUCOM, from Army Space forces out in Landstuhl, back in JSPOC through the Global Satellite Communications Support Center. It's been a collective effort to do that. Previously it's been hit and miss; if you've been working frequency management here, you'd solve that but you wouldn't get who did or what the ramifications were. But if you take that into purposeful interference and an adversary coming after you, then you lose that whole piece if you're only trying to restore the service.

We've had success in laying the foundation to mitigate electromagnetic interference. We're going to take that across the rest of the Space force enhancement so if any interference occurs anywhere along the way we'll have tactics, techniques, and procedures that we can react to that. React is not good enough for me, though. We need to take the fight to the enemy at times, which means we have to understand how everyone uses Space. Physics is physics. It's important. You're limited in certain ways you can do that. Space guys understand that. They understand the architecture. So even

though you can brief that you've got your adversary using a piece of equipment, he can't put it in context, because he doesn't know how it would be used. Space guys could come in and say this is how we would normally use this. Now, it doesn't get in the adversary's way of thinking, but at least a good way of coming at it. And they can help you identify vulnerabilities, that you could potentially exploit and take away your adversary's ability to use Space.

What's the biggest project you're working right now?

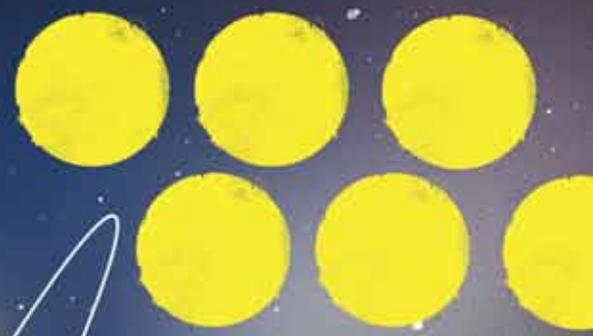
BRUCE The biggest project we have right now is implementing the Army Geospatial Enterprises policy inside this theater. How do you transfer geospatial information across all of the Army battle command systems and how do you use that to develop a common operational picture across the board and to serve as a basis for decision-making and situational awareness? How do you develop that for all to use? We are all over the map. What we've found is we've got some organizational challenges, we've got some equipment challenges, we have some procedure challenges.

This isn't just a Space issue, this is across the command. The Space officer is the one who has the broader picture, can see across the staff boundaries, and say here is how I can pull the team together, across the staff to solve a common problem. And then when you start them down the road and you have a little success these guys are smart enough. They understand their portion of how they use Space inside and how it's all pulled together. Then the Space guy can help them see the range of possibilities. Then it's really neat when the light bulb comes on and they start pulling things together and start pulling in from other sources – not necessarily, though, as Space sources, but when you pull them together through another product it starts to take on a whole stronger flavor.

We've actually had impacts on how operations go down because of our ability to pull information from a variety of authoritative data sources that when you look at in a stovepipe it's okay. But when you look at them together you get a different aspect that will cause you to go back and say is this really what I want to do, is this really the effect I want to have. So it makes a much tighter, cleaner scheme of maneuver so when you go through rehearsal you've got a closer solution to reality without really going through it. Then you can execute with minimum surprises.

R
CROSS

PROVIDES
VITAL
ACCESS



Access to satellite communication resources is vital to Warfighters in theater. Without it, phone calls, Global Positioning System usage, and important data wouldn't be available. Without regulation of the satellite resources, however, military units could run into some major problems, namely, the inability to get what they need, because the bandwidth is being used elsewhere. This is where Regional Communications Satellite Support Centers (RSSC) come into play.

Located at Patch Barracks, Germany, RSSC Europe plays a special role in the satellite communication field. Its mission is unique, serving a theater made up of 93 nations. The support center is set up to be a single point of contact for the units it supports, planning usage for satellite communications (SATCOM) resources.

"I think the uniqueness is who we support and where we support," said John Pipkin, RSSC Europe manager. "Each one of the RSSCs can do the exact same things for a customer. It boils down to the theater. We support the U.S. European Command which has 93 countries. We also support U.S. Africa Command and Central Command areas of responsibility; we reach far out there to support our customers. It's the theater-unique things you have to do and the little idiosyncrasies that come with the countries. In Europe, I have to deal with 93 different personalities. It's the same thing with Africa."

While each center supports the same mission for their customer, the location in Stuttgart is vital to the success and customer support.

Each RSSC can take over the mission of another RSSC—it's called a virtual continuity of operations plan. However, the difference is being closer to your customer base and the ability to provide real-time support.

"If I was stateside, and I had a EUCOM issue to support, it's an eight-hour time difference," said Pipkin. "Over here, I can meet that customer face to face. I can literally sit down with them and figure out exactly what it is they want. If we have a point of discussion, both of my combatant commands are within 15 minutes of here."

RSSCs are in place essentially to plan usage of all satellite resources, including those utilized by commercial industry. At RSSC Europe, Air Force Civilians, Army Civilians, Soldiers, and Navy contractors work in the same location, all supporting the same type of mission for their particular areas of control.

In this location, the Air Force has five Civilians in place to manage the resources of the Extreme High Frequency protective band satellites.

"We support EUCOM and AFRICOM with satellite resources they use when they deploy and strategic usage for nuclear command and control. They both have units that deploy, and they both have requests for satellite resources, and we give it to them based on guidance," said Wes Costello, Extreme High Frequency chief.

While each section has its own chief, and their missions don't overlap, they all support the same essential function: resource management.

"If this was Dish Network, or a commercial industry, and there were a million people who wanted to use the satellite but they could only allow access to 500,000, in commercial industry, they take the first 500,000," Costello said. "But we can't do that. We have to determine, based on needs and priorities, who gets the access. That's where management comes into play."

Access to satellite resources is finite, as only a portion of the resources are available for military use. So, it is essential to have the RSSCs in place to plan how to distribute the satellites' use. To avoid conflicts, the requests are ranked by mission priority, ensuring the resources are given to the most vital mission first.

"With greater bandwidth requirements . . . proper planning and regulation are essential in order to support all combat and contingency operations," said MSG Doug Bram, noncommissioned officer in charge of RSSC-Europe.

In total, there are three RSSCs worldwide, located at MacDill Air Force Base, Fla.; Patch Barracks, Germany; and Wheeler Army Airfield, Hawaii. Additionally, there is a Global Satellite Support Center located on Peterson Air Force Base, Colo. These centers are staffed by U.S. Army Space and Missile Defense Command/Army Forces Strategic Command Soldiers and joint-service Civilians.

The support centers were first established in 1988 to provide SATCOM services to ground-mobile forces. Their mission has evolved over the last couple of decades to include narrowband, protected, and commercial spectrums.

The RSSC is only one step in the SATCOM resource system. Once their plan is set, it is passed on to an operations center for execution. In the case of RSSC Europe, their plans are passed on to the Wideband Satellite Communication Operations center in Landstuhl, Germany, operated by Charlie Company, 53rd Signal Battalion.



IN TOUCH WITH MOST OF THE WORLD

Charlie Company Reaches Two-Thirds of Globe through Satellites

STORY AND PHOTOS BY
RACHEL L. GRIFFITH,
USASMDC/ARSTRAT
PUBLIC AFFAIRS

Located in a nondescript cement building, the only indication the 53rd Signal Battalion is in operation is the telltale orange color of the sign, signaling the outfit is a signal battalion. Charlie Company, 53rd Signal Battalion, 1st Space Brigade is responsible for the Wideband Satellite Communications Operations Center (WSOC) in Landstuhl, Germany.

“Our mission is to provide payload assuring for the Department of Defense wideband satellite constellations. We basically monitor the health and welfare of the data streams coming off of satellites providing communications for major commands around the globe,” said CPT Theodore E. Perry III, former company commander.

The WSOC is responsible for executing and monitoring the usage plans put forth by the Regional Satellite Communications Support Center Europe. About 60 Soldiers are assigned to the company and are mostly satellite operator/maintainers, who take the importance of their mission seriously. The operations floor is home to a sea of monitors, displaying information the Soldiers have been specifically trained to decipher.

“Our mission is to ensure the health and welfare of the satellite is maintained properly, so the soldiers on the ground can have proper support,” SGT Lowell Sitez explained.

The mission in Landstuhl is unique, offering Soldiers there a view few others can access.

“With the satellites that we see into, we can take a look at upwards of two-thirds of the globe at any given time. This is a capability that most sites, if any others, do not have,” Perry said.

The WSOC operates in a partnership of sorts with the Regional SATCOM Support Center Europe, executing and monitoring the payload access plan set forth by the RSSC. The mission executed at their location is in support of more than 30 countries, making it one of the most diverse locations in terms of the customers it serves.

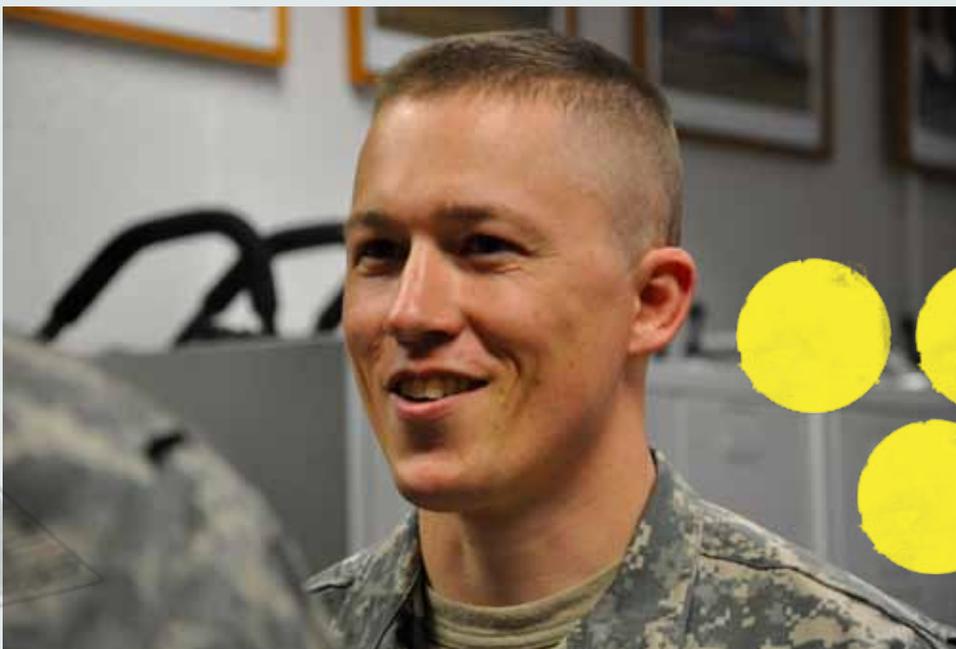
Charlie Company is one of six companies worldwide that make up the 53rd Signal Battalion which is headquartered in Colorado Springs, Colo. Each has the same mission responsibilities, though the location in Hawaii is the first with access to the Wideband Global Satellite resources.



LEFT Soldiers of Charlie Company, 53rd Signal Battalion, 1st Space Brigade, led by commander CPT Ted Perry and 1SG Christopher Harbach, pose outside of their building in Landstuhl, Germany.



ABOVE SPC Russel Malinsky stands ready to explain his mission requirements during a recent command visit by 1st Space Brigade leadership.



LEFT 1SG Christopher Harbach briefs 1st Space Brigade leadership.

BOTTOM LEFT SSG David Blotter smiles while discussing his role with COL Eric P. Henderson during a command visit to the company.



ACTING AS ONE TEAM

Commercial Imagery Allows Sharing with Partners, Aid Organizations

CPT MIKE HANCE
COMMERCIAL IMAGERY TEAM OIC

When GEN David H. Petraeus, commander of the International Security Assistance Force in 2010-11, published his guidance for conducting counterinsurgency operations in Afghanistan, one of his main points was the need to act as one team. He encouraged U.S. forces to work closely with their international and Afghan partners, stating the absolute need for acting in cooperation. Working together in a joint operating environment with coalition and Afghan partners requires the ability to share products, such as satellite imagery.

Access to satellite imagery is a key component to planning and conducting operations, but many times U.S. forces obtain classified imagery from National Technical Means, severely limiting the ability to share it with partners. A solution to this problem is the use of commercial imagery. The U.S. Army Commercial Imagery Team (CIT) is a specialized team providing high-resolution, unclassified commercial satellite imagery to U.S. forces, coalition forces, and non-governmental organizations that can be openly shared with coalition partners and Afghan and Iraqi counterparts.

The CIT is an operational element of the 1st Space Brigade, a subordinate command of the U.S. Army Space and Missile Defense Command/Army Forces Strategic Command. The team is under operational control to U.S. Central Command (CENTCOM) and works in conjunction with the National Geospatial-Intelligence Agency (NGA), topographic community, intelligence community, and CENTCOM's commercial imagery collection managers.



A member of the Commercial Imagery team, in support of Operation Iraqi Freedom, shares imagery with coalition forces. The images accessed by the Iraqi forces were used, in part, to assess damage from an oil explosion over a month-long period .



The CIT has a unique, direct relationship with the NGA and the commercial imagery providers, DigitalGlobe and GeoEye. The CIT has an agreement with the NGA that allows the receipt of raw imagery directly from DigitalGlobe and GeoEye over a 45 megabytes per second connection into a Virtual Ground Terminal that automatically processes the raw imagery into an ortho-rectified National Imagery Transmission Format Standard accompanied by subimages, symbols, labels, text and other information. This minimally processed imagery can be provided to units with organic geospatial support (S2/J2, Topographical Teams, Geospatial Support Teams, etc.) so they can manipulate the images themselves. Or the CIT can package imagery into a finished format, such as GeoPDF, GeoTiff, JPEG, Multi-resolution Seamless Image Database, and hard-copy maps, for units lacking organic geospatial assets.

The CIT has 72 terrabytes of archived commercial imagery covering a large portion of the CENTCOM area of responsibility. This allows the CIT to rapidly process and deliver imagery requests, many times within hours of the request. This archive grows each month with updated collections of pan-chromatic (black and white) and multi-spectral (color) images. All of the archived imagery is less than one year old, ensuring the relevancy of the products provided. The CIT

also has a direct access relationship with NGA Source for the submission of commercial imagery new collects.

A second key task of the CIT is to provide mobile training teams to Iraq and Afghanistan to teach TalonView mission planning and mapping software to requesting units. This training focuses on teaching users how to request commercial imagery and how to use TalonView to manipulate the imagery to create their own products.

The CIT has been deployed to CENTCOM since 2004, answering thousands of requests for imagery, providing education to hundreds of coalition partners, and supporting hundreds of military units, coalition partners, and non-governmental organizations. Even though deployed to U.S. Central Command, the CIT has provided products to U.S. Africa Command in an effort to thwart would-be pirates, and products in support of humanitarian relief efforts for the Haiti and Japan earthquakes for U.S. Southern Command and U.S. Pacific Command.

The Commercial Imagery Team can be contacted with questions or to request imagery by NIPR e-mail at cit.rfi.centcom@me.navy.mil or SIPR e-mail at cit.rfi.centcom@me.navy.smil.mil. The CIT can be reached by DSN at (318) 439-6215. Or visit the Commercial Imagery Team SIPR Web site at <http://gil.nga.smil.mil/cit>.