

Spectral Operations Resource Center Support to the War Effort

“Two things we need are Enroute Mission Planning and Remote Sensing of the Battlefield.”¹

— *General John N. Abrams,
TRADOC Commander*

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Just as the Army has charged Space Operations Officers “to focus and address Space-related matters pertaining to warfighting,”² in a paralleling effort, the Commander in Chief, U.S. Space Command approved and stood up a joint initiative, executed by Army Space Command, called the Spectral Operations Resource Center (SORC).

The SORC is a resource and part of the Space toolkit that Space Operations Officers and the Army’s warfighters may draw upon for support. In performing its mission, the SORC works with the Naval Space Command (NAVSPACE), Air Force Space Command (AFSPC), Space Warfare Center (SWC), and 544th Intelligence Group (IG). This article highlights SORC capabilities, spectral products and processes, and datasets that can be “tapped” by Space Operations Officers for their supported warfighters.

SORC Mission and Organization

SORC missions include coordinating and managing U.S. Space Command multispectral imagery (MSI) and hyperspectral imagery (HSI) production capabilities; providing access to spectral (MSI, HSI, radar) information, products and services (primarily posted on the Army Space classified website³); advocating joint warfighter spectral information requirements; and integrating emerging intelligence and service community spectral capabilities into Space operations. The SORC is a joint spectral

facility, executed by Army Space Command, with the U.S. Space Command Space Operations Center providing J2/3 oversight for tasking and leveraging U.S. Space Command component capabilities. SWC personnel and Army Space Command contractors and soldiers man the SORC, with plans for including NAVSPACE personnel and other joint agency personnel in the future.

The SORC also draws upon Army Space Command core capabilities such as the Mobile Processing Exploitation and Demonstration (MoPED). The MoPED serves as a platform for the SORC to use in joint exercises such as the recently completed Ocean Radiance Exercise in Tampa, Fla. Personnel and resources of the Army Space Command Remote Sensing Branch, along with the personnel from the SWC, the 544th IG and NAVSPACE Remote Sensing Information Center were integrated at the Ocean Radiance Exercise in October 2001. Most of these “spectral experts” are part of the larger SORC team in Colorado Springs.

Bo Dunaway, the SORC Director, and Chief, Army Space Command Remote Sensing Branch, explained that the SORC “is basically an entry point for G3/J3 users who don’t have expertise to task, process, or plan spectral operations: the spectral have-nots.” The SORC also serves to integrate U.S. Space Command capabilities with evolving measurement and signal intelligence/spectral architecture.

SORC Support to the War Effort

Since the terrorist attack of September 11, the SORC has been “tapped” by a wide range of users, including the V Corps Central Command, U.S. Southern Operations Command, the U.S. Air Force Surgeon General, the HQ 14th AF, 614th Standard Operating Procedures and others.

In the past months the SORC team made the first-ever, operational use of HSI to successfully validate high-priority targets for an in-theater warfighter. While



**Mobile Processing
Exploitation
& Demonstration plat-
form for the SORC**

HSI imagery and techniques correctly identified what other means could not, it was the intelligence organization's in-country imagery analysts who then validated the locations reported through other means and sources. Neither the SORC nor HSI is a "stand-alone" targeting technology. Spectral technology has shown its value as another supporting tool for an all-source analysis confirmation of high-value targets.

Similarly, the SORC teams have demonstrated that spectral technology in the hands of geologists and imagery analysts can also be used successfully in a cross-disciplinary approach to support the war effort in-theater. Classified products can be viewed on the Army Space Command classified website.⁴

Contributions to Homeland Defense

The commander, U.S. Army Space and Missile Defense Command (SMDC) has had a role in the Homeland Defense effort to protect high-value, high-risk terrorist targets that include U.S. Space launches, nuclear and command and control sites in America, and high-visibility targets such as the 2002 Winter Olympics in Salt Lake City. Accordingly, the SORC, which encompasses and draws upon all the Army Space Command remote sensing capabilities, provided common operating picture products for various Army, Federal, and local agencies that were used in coordinating security plans for the Olympic venue sites in the Salt Lake City area. An overview product that provided broad area coverage of Salt Lake City environs, with 3D insert views, (represented on page 7) illustrates its potential use to Space Operations Officers for smaller areas of interest at higher resolution. Classified or for official use only spectral products and image maps are posted continuously at the National Imagery and Mapping Agency (NIMA) spectral imagery map site⁵ or on the Army Space Command classified website. For example, 11 new NIMA coproduction maps were posted to this site in December 2001 along with their

digital, print-ready files. Homeland Defense spectral support products have been provided to, among others, the Continental Army, Space and Missile Defense Command, and the U.S. Army National Simulation Center.

Other spectral products can include higher-resolution visibility and approach planning products in 2-D or 3-D as well as terrain categorizations and spectral analysis in MSI or HSI for determining what "belongs and doesn't belong" in a given location.

Current SORC Efforts

To continue to focus MSI, HSI, and radar cutting-edge techniques and capabilities on operational applications, the SORC concentrates on current essential elements of information from Central Command, European Command, Southern Command, and the Defense Intelligence Agency. NIMA coproduction of spectral information products has "shifted fires" from a largely Army focus to include sister service bases, training areas, and sites of interest for Homeland Defense mission planning. All of the products meet NIMA criteria for accuracy and format and are suitable for operational use. Much like NIMA, the Commercial Satellite Communication Initiative Management Office views the SORC as one of the most promising conduits for spreading operational use of measurement and signal intelligence to warfighters at all levels.

Conclusion

Periods of war have instigated leaps in applied technology such as widespread use of the global positioning system in Operation Desert Storm. In Operation Enduring Freedom, many cutting edge efforts will of necessity and with "Yankee ingenuity" be applied successfully, and these successes need to be passed among warfighters.

We are not selling spectral technology as a "magic
(See SORC, page 34)

SORC ... from Page 13

bullet” for Space Operations Officers or other warfighters. As the Army’s Space professionals, inside knowledge of these spectral successes and the ability to tap the SORC will help in the larger context to “normalize” Space while providing another reliable and responsive Space support tool for commanders at all levels.

The SORC can be tasked through the U.S. Space Command or Army Space Operations Center, and the Army Space Command G3.

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End notes

1. From After Action Review notes of Dave Carruthers, FDIC Liaison to TRADOC Seminar War Game III, October 2001. Email dated October 22, 2001, Subject: Tradoc Seminar Wargame III, david.carruthers@monroe.army.mil
2. Why the Army Has Space Operations Officers, by BG Richard V. Geraci, JASO, Vol.1, No.1, September 2001
3. US Army Space Command SIPRNET website at <http://arspdb2.armySpace.Spacecom.smil.mil/MSI>
4. Ibid.
5. NIMA Spectral Image Map SIPRNET website at <http://www.nima.smil/products/armysim/index.html>

DCG ... from Page 5

air defense structure using ground-based air defense assets to support homeland security. Army Space Command has worked extensively with NORAD to develop plans and potential options to support homeland defense. Operation Noble Eagle changed the dynamics of how we address air defense of the Nation. Army Air Defense soldiers from various commands, active, reserve, and National Guard, Department of the Army Civilians, and contractors have worked together to complete comprehensive studies and analysis on defending national assets, as well as to conduct exercises and demonstrations, to determine tactics, techniques, and procedures to protect critical assets. We are a part of the joint team working to protect North America with a seamless air and missile defense.

Since September 11, Space operations officers at all levels of command have been engaged in current operations to support the entire Army. This has been a particularly exciting time to be assigned to and supporting Army Space and Missile Defense Command. Our role across the full spectrum of military operations has been clearly recognized. We have been called upon like never before to provide services, products, and expertise at the strategic, as well as, operational and tactical levels. We have created new products, found ways of doing things better and faster, created tactics, techniques and procedures where none existed, identified areas of doctrine that need to be updated, gathered lessons learned, improved the integration of civilians and contractors into operations, mobilized Reserve Component Space officers and soldiers to man newly created elements and centers. We have met the warfighter’s requests for support, products, and expertise without exception. Every member of this command and our Space operations officers stationed worldwide can be proud of the support we’ve provided in this global war.

FRONTIER ... from Page 23

for the future without losing one’s grip on what is enduring in the conduct of war. In the case of Space, the future promises unprecedented capabilities to acquire and communicate information, exert command and control, enhance the performance of surface and air systems, and ultimately expand the reach of military power. What endures is the reality that the ultimate test of military Space capabilities remains their impact on what transpires on the surface, for it is there that the political impact of military operations finally must be measured.

Space is already becoming a domain not unlike the high seas. However, in contrast to maritime usage, international law and custom relating to Space remain largely undeveloped. But that condition will not endure much longer. Whether we like it or not, because Space has become militarily significant, there is no going back. That it will be so exploited, by others as well as ourselves, is no longer in question.

Accordingly, the time has come for the United States to begin in earnest to define political guidelines for the military utilization of Space. Our great challenge is to manage the exploitation of technology’s promise in a manner that preserves and reinforces the capacity of our democratic leaders to control a future crisis. By that measure we will know if our nation and the world are made more secure.

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The Army After Next project, directed by the U.S. Army Training and Doctrine Command, which looked 15-25 years into the future and explored technological and operational concepts dramatically different from those of the present.