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# Standing Watch!

## A look at Theater Missile Warning Detachments

**By COL Timothy Coffin and MAJ Joseph Carroll**

At 5 p.m. on Osan Air Base, Korea, most people are on their way home from work, but for Alpha Crew, Charlie Detachment, 1st Space Company (Joint Tactical Ground Stations, JTAGS) the day is just beginning. Physical Training starts at 5 p.m. The crew meets at 7:30 p.m. to review global ballistic missile activity from the past 24 hours and receive an intelligence estimate for ballistic missile events which are likely to occur in the next 24 hours. Following the intelligence update, Alpha Crew heads to the JTAGS shelter, deep in the bowels of the Korean Combined Operations and Intelligence Center. The Alpha Crew Chief receives a thorough briefing from the outgoing crew chief on all activities from the past 12 hours, conducts a sensitive item inventory, checks the equipment and operations status of the data processors and communications systems, and then assumes responsibility for missile warning operations. The Alpha Crew Primary Operator completes primary workstation changeover with the primary operator from the previous shift, ensuring the system is fully mission capable. Next in sequence, the Alpha Crew Secondary Operator completes changeover with his predecessor. The Secondary completes communications checks with the Cheyenne Mountain Missile Correlation Center, and U.S. Pacific Command, Central Command and European Command's primary missile warning nodes using U.S. Strategic Command's First Detect/First Report secure voice network. At the completion of these checks, crew changeover is complete and Alpha Crew has fully assumed the JTAGS missile warning mission. The crew embraces the detachments motto "A CUT ABOVE" and digs in for the ensuing 12 hour shift ready and willing to provide 24/7/365 real world mission support to the Army, Joint warfighter and coalition partners. This routine happens twice a day, 365 days a year in the Pacific, European and Central Theaters as JTAGS detachments stand ever vigilant and on guard for the Soldier.

JTAGS is a transportable satellite ground station and information processing system which receives and processes in the theater of operations, raw, wideband infrared sensor data down-linked from Defense Support Program Satellites. JTAGS detachments disseminate warning, alerting and cueing information on ballistic missiles and other tactical events of interest throughout the theater using a redundant network of communications systems.

The JTAGS detachments today evolved from a highly successful fast innovation and rapid prototyping effort from the Army Space Exploitation Demonstration Program. Prototype systems were built and demonstrated to Combatant Commanders in Europe and Korea in 1993 and 1994. Originally developed and built by GenCorp-Aerojet (now Northrop-Grumman) for the U.S. Army, JTAGS determines the ballistic missile source by identifying missile launch point and time, and provides an estimated impact point and time. The direct downlink and in theater, architecture of the system reduces the possibility of single-points of failure in long-haul communication systems, reduces the vulnerability of those networks to enemy interdiction and is responsive to the theater commander demands for warning and battlespace characterization. The JTAGS system fulfills the critical in

theater leg of the triad of systems which make up the U.S. Strategic Command's Theater Event System.

JTAGS processes data from up to three Defense Support Program infrared, missile warning satellites in orbit over 22,000 miles away from earth to determine launch points and time, azimuth of flight and predicted point and time of impact for ballistic missiles. It supports the passive defense pillar of air defense by providing in-theater early warning of enemy ballistic missile launch events. JTAGS also supports active defense by cueing air defense assets to the missile track. Data is also provided on launch location to deep attack assets to aid in attack operations and elimination of the theater missile threat.

JTAGS provide reports on other infrared events such as large fires or explosions that may be indicators of events that support the Commander's Critical Information Requirements. These reports contribute to a commander's battlespace awareness, assisting him in deciding how to best employ his forces to minimize risk and maximize his desired effects.

Training lies at the heart of JTAGS ability to provide near-real time ballistic missile warning. From the first day at a JTAGS site a new operator undergoes an intensive 30 day Table-IV certification process. During this individual Table Certification the operator learns all site specific information to include regional launch locations, missiles of importance and communications. Communications, advanced event processing and warning notification procedures are then drilled into the operator until they become second nature. Once a crew member has mastered the skills of processing an event they are placed on a crew where they observe live operations. Finally, once a crew has demonstrated proficiency as a team they are Table V certified. The team certification tests a variety of situations from loss of the crew chief to mass attack procedures. A successful Table V takes about one week of dedicated practice and a crew rarely passes on the first attempt. It is this tough, realistic training that allows JTAGS to quickly and accurately provide ballistic missile warning under all conditions.

To keep in-line with the unit-level battle-focused training, JTAGS detachments routinely participate in theater missile warning exercises. Anticipated real-world scenarios are the primary focus in these exercises so that all players and missile warning producers will be able to effectively provide ballistic missile warning based on any number of scenarios.

The training pays off. In the early morning hours on July 5, 2006, (Korea Standard Time), North Korea test launched numerous ballistic missiles from its arsenal. The days surrounding these launches were tense as the World and U.S. Forces Korea waited to see if there would be follow-on actions. As these events unfolded JTAGS provided the U.S. Forces Korea and U.S. Pacific Command commanders reliable, accurate near-real time information on the North Korean Missile launches. Training was the key to this success.

Combatant Commanders view JTAGS as a critical capability — so much so that both U.S. Central Command and U.S. Pacific Command have formally stated that they consider JTAGS ability to directly down-link, process and disseminate warning data from within the theater an essential part of their missile warning architectures.

The demand for information from infrared sensors continues to grow. Current and anticipated threats demand improved sensor capabilities and the ability to fuse and correlate data from multiple sensor types and systems. It is no longer good enough to report that a missile launched from an approximate location or will impact in a general area. It is no longer good enough to tell a commander that something "hot" occurred at a particular place and time on the battlefield. The commander and his forces need precise launch points to better support attack operations, and refined impact prediction to better focus active defense assets and direct passive defense. The commander needs to know what occurred to produce the "hot event."

JTAGS future lies in the ability to receive and process data from multiple sensors being developed and fielded today to provide reports on events creating signatures across the energy spectrum, not only those detected by Space-based missile detection systems. This concept ensures that we avoid data and sensor stovepipes and contribute to a common operational picture. Those sensor include but are not limited to: Space-Based Infrared System; Space Tracking and Surveillance System; the Alternative InfraRed Satellite System; other air based infrared sensors; and ground, air and Space-based radars. This will not only provide a more robust capability to provide critical warning and battlespace awareness to theater commanders, but will also create the ability for JTAGS to support other customers such as the Ballistic Missile Defense System or Missile Defense Agency's kill chain for Aegis, Terminal High-Altitude Area Defense, Kinetic Energy Interceptor or Patriot engagements.

Only JTAGS, by its in-theater ability to integrate directly into the theaters' missile warning architecture, and in-theater ability to directly down-link, process and disseminate warning data, is uniquely suited to meet the Combatant Commanders' requirements for assured timely and accurate missile warning. Expanding today's capabilities enable JTAGS to continue to meet warfighter and commander requirements in the missile threat environment of the future battlefield.

**Contributions to this article were made by SSG Jared English, Lt. Cmdr. Kent Meyer, MAJ Timothy Dalton and Charles Ehlers.**

COL Timothy R. Coffin assumed command of the 1st Space Brigade, U.S. Army Space and Missile Defense Command/U.S. Army Forces Strategic Command (SMDC/ARSTRAT) on July 27, 2006. In this position he is responsible for the supervision of three one-of-a-kind battalions — the 53rd Signal Battalion (SATCON), the 1st Space Battalion and the 117th Space Support Battalion of the Colorado Army National Guard. These units are charged with providing day-to-day Space support to the operational Army. Coffin has been an Army Space officer for the last ten years.

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