

Space Support for the Composite Aerospace Strike Force

by

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Space support to composite aerospace forces is a key ingredient for success and essential to all of the core competencies of the Air Force outlined in our Global Engagement vision. Without cutting edge space support the warfighter cannot obtain or sustain air and space superiority, global attack, rapid global mobility, precision engagement, information superiority or agile combat support. A primary player in Global Engagement is the Air Expeditionary Force (AEF). During recent AEF deployments to the Persian Gulf, Air Force Space Support Teams (AFFST) from Falcon AFB, Co. provided a crucial link to success for AEF warfighters. Using the Multi Source Tactical System (MSTS) and other mobile C2I equipment, these space warriors brought the warfighter critical information for initial strike operations while enroute to the beddown location. Within hours after landing they set up a more robust C4I/mission support cell, supporting follow-on operations with essential weather, threat, target and C2 information. This paper discusses in general, space support to the warfighter, and specifically, AFSST's unique capabilities, the support they provide, and their relationship to AEF aircrew and commanders. It underscores a proposed warfighting principle (Space support must be integrated into all aerospace operations), and offers a new name for future AEFs: the "Air and Space Expeditionary Force".

Weeks before the 4th Air Expeditionary Wing (4 AEW) deployed, 76 Space Operations Squadron (76 SOPS) personnel arrived at Seymour Johnson AFB with a MSTS to train 4 FW F-15E Strike Eagle aircrew and technicians. They came on invitation from 4FW/CC BG Lance Smith, an airpower visionary now serving as Vice Commander, Seventh Air Forces, Korea. AFSST members then installed the MSTS on a KC-135 for testing and deployment to South West Asia (SWA) with the 4 AEW in March, 1997. The MSTS is a proven carry-on situational display system used to enhance mission effectiveness and aircrew safety. It receives en route tactical and national signals intelligence (SIGINT) updates, allied/friendly/enemy/unknown air picture updates, and secondary imagery dissemination system (SIDS) and other updates when available. MSTS overlays potential threats onto 2-dimensional (2D) navigation charts or 2D/3D multi-spectral imagery (MSI). MSTS is also used for mission preparation and mission rehearsal. During the deployment, 4 AEW commanders and mission planners aboard the KC-135 used information obtained via the MSTS, including near real time threat and electronic order of battle updates, to plan initial strike training missions. F-15E interdiction, F-16CJ Search, Engage and Destroy (SEAD) and F-16 air superiority mission commanders all used MSTS information to update and analyze mission routing and tactics.

The AFSST is designed to support warfighters at the Operational (Air Operations Center) and tactical (AEW, FW) levels of war. There are also other component (Army and Navy) Space Support Teams and Joint Space Support Teams (JSST), but the AFSST is the primary deployed space support function for the aerospace warfighter. Typically a four-person team, AFSSTs combine space operations, intelligence, communications, computer and varied tactical mission knowledge and experience. Most have at least one member with an aviation background. A primary AFSST tool, the MSTs processes secure SATCOM, UHF and HF inputs using Unix-based software, and displays outputs on a flat screen CRT. The information available to commanders, intelligence personnel, mission planners, and aircrew includes ATO and other text data updates, multispectral weather imagery, high resolution target photos and multi-source near real time threat and electronic order of battle data to include ballistic missile attack warning. The MSTs might be the sole source of most or even all this information for the first 36 - 48 hours of AEF employment until secure SATCOM/SIPRNET connectivity is established by combat communication teams. Even then, C4I systems like the Global Command and Control System (GCCS) only partially replace what MSTs brings to the fight. With direct, secure SATCOM/HF links to AWACS (TADIL-A), TRAP, TIBS and other ELINT broadcasts and other, classified sources, MSTs brings information in faster. AFSST team members, with their training and equipment, help the warfighter process this information and format it for mission commander and aircrew use.

During 4AEW mission planning, a designated aircrew worked with AFSST members to analyze threat data and target imagery before producing a final attack plan. We then printed photo-quality inflight target attack cards using another AFSST tool, the Tactical Space Operations Cell (TSOC). TSOC, also referred to as the Space Products Information Terminal, is a ruggedized Silicon Graphics-designed personal computer running on special UNIX-based software and connected to a Kodak color laser printer. TSOC tools include several software programs that provide, in part, graphic depictions of satellite overflight periods, multiple views of an area of interest, 3-D fly through of that area, and hardcopy products of these depictions. At the operational level, a Joint Theater Missile Defense Planner (JTMPD) residing in TSOC allows an operator to build theater missile defense scenarios. TSOC also allows the AFSST members to pull precise coordinates from menstruated imagery and manipulate satellite and radar data in a variety of ways, giving strike planners the ability to design track-up or radar-simulated views for attack cards and target study. The result is aircrew-friendly mission data for inflight use that greatly increases the odds of hitting the right target on the first run attack.

4AEW mission success in precision guided munition deliveries (simulated) was over 95% compared to 90% for AEF III. During AEF III we hit similar or identical targets, using the same munitions, but did not have TSOC mission planning materials, relying instead on often poorly copied, standard target book photos. The bottomline: with AFSST and other mission support warriors helping us analyze MSTs and other intelligence data to avoid known threats, and design high quality mission materials with TSOC, F-15E and other strike planners are ensured a greater chance of successfully fighting our way in to bad guy land, destroying the target, and egressing intact to fly and fight again.

Since 4AEW, space warriors at 76 SOPS and the Space Warfare Center have been hard at work designing improvements to MSTS and TSOC and developing new systems to help composite strike forces, as well as special operations and airlift forces, improve our odds for success. By incorporating lessons learned from past AEFs, so that all the information a warfighter needs is available, real-time and on the way to the fight, space experts are helping to validate the USAF doctrine of Global Engagement. MSTS's secondary imagery distribution system has been updated to receive and send text data and to better process complex graphics and imagery. Constant Track, a new tool, allows strike mission planners to view planned missions from an aircrew perspective, with GPS accuracy, enroute to the target. Other systems are in development, and we are closing in on the goal of bringing space and air weapon systems together for true battlespace dominance.

The future AEF commander will bring UAVs and other new weapon systems to the fight that are ever more reliant on space support for success. We now need to integrate the AEF concept with space support, to include training and exercising together. ACC, through the fighter wing, should budget space education and training for mission commanders during upgrade. The Space Warfare Center could host this training at Falcon AFB, where other space education courses are offered, or send a mobile training team to select fighter wings and Fighter Weapon Instructor Course at Nellis AFB. From a joint perspective, this push for integration should extend to Navy, Army and Marine air wings and the Top Gun instructor school at Miramar NAS. From a combined view, we should invite our British and other allied aerospace forces' mission commanders, who might someday soon also be asked to contribute warriors and aerospace vehicles to an AEF. We should rename the AEF the Air and Space Expeditionary Force (ASEF), and institute a new principle, in the spirit of training the way we will fight: "Space support must be an integral part of ASEF training and execution".

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