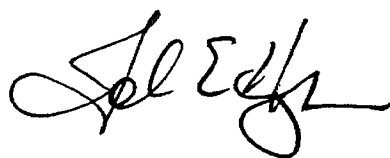


# Space Mission Force

Developing Space Warfighters for Tomorrow

White Paper



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## ***INTRODUCTION***

“All of mankind is interested in barring the road toward transforming space into an arena of military rivalries.” Soviet Radio, 1966

Despite world interest in avoiding militarization of space, potential adversaries have identified the use of space as an advantage for U.S. military forces, and are actively fielding systems to deny our use of space in a conflict. This is not without precedence. Through the centuries, nations formed armies, navies and air forces to defend the right to use the global commons of land, sea and air. Securing our right to use space is simply an extension of an age old principle to guarantee use of global commons.

Space as a global commons is vital to commerce and is an essential element of Joint Warfare and global stability. Space is no longer a sanctuary where the United States or our allies and partners operate with impunity. Although Air Force Space Command (AFSPC) has a long history of providing space capabilities vital to the defense of our nation, the training and skills that sustained our space operations for the last several decades are not the same skills we need to fight through threats and win in today’s contested, degraded and operationally-limited (CDO) environment. To ensure our forces are prepared to operate in this new reality, AFSPC must transform our culture and build the expertise and skills necessary for our space forces to operate freely, and if necessary, defend themselves in the global commons of space.

## ***COMMANDER’S INTENT***

My intent is to transform our culture by implementing the Space Mission Force (SMF), a new advanced training and force presentation model that prepares our space forces to meet the challenges of today’s space domain, while ensuring we continue to provide vital space capabilities for the Joint Force now and in the future. The success of this new approach rests on the shoulders of our Airmen, on whom we depend to preserve our freedom of action in space, and who are prepared to assume the mantle of vanguards of the space domain.

## ***APPLICABILITY***

This transformation applies to all AFSPC units and the entire Space Mission Enterprise including every operator, mission support professional, intelligence professional, headquarters staff member and acquisition professional supporting Air Force space operations. All members of the Space Mission Enterprise must embrace this transformation and conduct their daily duties with a focus on creating a force capable of achieving space superiority – the ability to conduct operations and deliver effects at the time, manner and method of our choosing – while denying that capability to an adversary. Because integration of the Total Force is essential to SMF success, AFSPC will work closely with our Air Reserve Component (ARC) partners to ensure their operations and training complement and strengthen the overall SMF construct.

## **PURPOSE**

This White Paper describes the method by which AFSPC will train and field our space forces to meet the challenges of today and tomorrow. Adversaries have developed and fielded capabilities to disrupt and deny the space systems we operate on behalf of the United States and our allies and partners. Consequently, AFSPC must organize, train and equip our space forces in a way that maintains our vigilance and, if required, defends our ability to benefit from space across the spectrum of conflict.

Today, our space operators are trained to mitigate environmental and manmade risks to complex and capable space systems. As the military threats to these systems grow, our training must shift to counter these threats. Our space forces must demonstrate their ability to react to a thinking adversary and operate as warfighters in this environment and not simply provide space services.

Underpinning this shift is a renewed emphasis on robust, actionable intelligence, comprehensive analysis of potential adversaries' capabilities and employment doctrine, the ability to rapidly process and disseminate information and react appropriately when confronted by a threat. Likewise, the acquisition arm of the space mission enterprise must procure systems and capabilities to operate more effectively against these threats, as well as the robust training systems required to prepare our space force for a wide range of challenging scenarios. If we do not adopt this transformation quickly, we will lose our competitive advantage in space and jeopardize our ability to successfully confront adversaries in all domains.

This transformation requires all of us to move beyond the status quo and adopt new tactics, techniques and procedures (TTPs) that deter aggression, and if deterrence fails, to enable swift and deliberate action. We must outpace adversaries who contest our use of space by transforming our paradigm of organizing, training and equipping to ensure we retain our competitive advantage. This requires us to challenge current practices and re-evaluate all existing processes to drive development and fielding of solutions including organic indications and warning; on-board protection devices; innovative TTPs; and other solutions that increase our ability to succeed.

## **DEFINITIONS**

As we define and implement SMF, AFSPC will adopt and adapt proven principles of operational art from other domains and apply them to space. We will tailor these proven methods, principles and terms to account for our unique domain and apply them to the following:

**Space Mission Enterprise** includes all AFSPC elements that acquire, develop, operate, train and sustain Air Force space forces.

**Space Mission Force (SMF)** are all units and personnel who constitute the operation of Air

Force space systems, primarily operating from garrison, as a ready force able to operate weapons systems and execute missions in a CDO environment.

**Ready Spacecrew Program (RSP)** and the companion Ready Intelligence Program, are the programs that continually improve the skill and proficiency of space mission forces. The RSP includes Continuation Training (CT) and Advanced Training (AT), and leverages the Weapons and Tactics process to continuously develop, test and train innovative warfighting TTPs.

**Space Mission Task Force (SMTF)** is the element of the SMF presented to Commander United States Strategic Command (CDRUSSTRATCOM) by the Air Force for operational use. It acknowledges most space forces perform operations from in garrison. These forces includes space operators, mission planning personnel, intelligence professionals, space weapon systems and other necessary equipment and support.

**Advanced Training (AT)** is the set of formal training requirements designed to advance the skills, knowledge, and competencies of the SMF to ensure mission accomplishment through a CDO environment. AT is focused on responding to and defeating current and future threats.

## ***EXECUTION***

SMF focuses on two primary lines of effort: training and force presentation. First, the SMF construct establishes the RSP, which enhances training to create a force capable of performing combatant commander-directed missions in the face of dynamic and varied threats. While the most important part of the RSP is AT, which emphasizes innovation, decision making at the lowest levels and development and use of new and innovative tactics to counter space threats, CT is critical to ensure our spacecrew members maintain foundational skills.

Second, SMF adjusts force presentation and command and control constructs to normalize with other Air Force combat units to improve understanding, provide transparency to combatant commanders regarding available forces and readiness, and to create a substantial dwell period required for an effective RSP.

### ***Ready Spacecrew Program Training Concept***

RSP rests on several tenets:

- Increased accountability of spacecrew members for their own training and currency
- Training beyond current expertise and limits, perhaps even to mission failure, to foster learning and growth
- Creating a culture of continuous self-improvement and healthy competition within the spacecrew force

- Adopting a rigorous debrief process to determine root causes of mistakes and foster development of new TTPs
- Exercising operational authorities at the lowest level practical to enable appropriate freedom of action and meet the commander's intent through mission type orders

These tenets contribute to a comprehensive training program that continually increases individual proficiency and crew effectiveness across the entire range of operational and threat scenarios. RSP uses a flexible process starting with commander-defined training goals and objectives for assigned units and missions. Units must establish higher and more demanding training standards focused on improving combat capability against ever-increasing threats and complex scenarios. While the current paradigm establishes minimum skills required for weapon system operation, the RSP demands continual skill improvement in the weapon system against varied threats.

One key to RSP success is improved training environments, which includes ground and on-orbit simulators and training assets. These training assets must emulate real-world systems, threats and environments and enable multi-system and multi-domain training against a thinking adversary to allow the most realistic and challenging training possible while ensuring safety, security and responsible action in the environment.

To ensure the skills being developed in this new training paradigm are the right skills, it is imperative HQ AFSPC, 14 AF, 25 AF, the National Air and Space Intelligence Center (NASIC), the Space Security and Defense Program (SSDP) and others assist units in developing a comprehensive understanding of the threat environment for each mission area. AFSPC will adopt and tailor proven processes including the Threat Assessment Team (TAT) and its supporting Tactics and Adversary Studies Element (TASE) to determine the most likely and most dangerous scenarios posed by potential adversaries. Threats analyzed during the Tactics Analysis and Reporting Program (TARP) process, in conjunction with priorities specified by Component-Numbered Air Forces (C-NAFs) and validated through the Realistic Training Review Board (RTRB) at least annually, will drive changes to training methods, training equipment, other material and non-material solutions.

The RTRB's goal is to maximize available resources to provide the most effective and realistic training, documented via publication of Ready Spacecrew Program Tasking Memoranda (RTM). RTMs supplement training requirements articulated in Air Force Instructions (AFIs) and focus training on the current highest priority threats and employment plans.

The RSP will also facilitate development, validation and improvement of TTPs based on realistic and challenging training. AFSPC will work in concert with the USAF Warfare Center to test and codify new TTPs in tactics manuals (AFTTP 3-1 volumes) for each major weapon system.

Effective CT and AT programs must strengthen foundational training by building and reinforcing weapon system knowledge and weapon system employment TTPs. This foundational training will

increase spacecrew understanding in four categories: CDO challenges to mission success, defensive TTPs, system and operational integration, and mission planning and debriefing for the current and future threat environment

Training events should push spacecrews to their limits and drive them to discover new and better ways to conduct operations. The following are examples of training events and methodologies space forces should leverage in preparation for CDO operations:

- Plan and execute exercises with tailored desired learning outcomes and high-fidelity exercise inputs for tactical and operational level operators as a primary training audience, with an emphasis on integration and command and control
- Execute exercises with a full spacecrew in realistic simulators to maximize scenario fidelity, lessons learned and TTP development and validation
- Adopt a mix of live-virtual-constructive (LVC) technologies to maximum benefit
- Participate in exercises that enable multi-domain integration with air, cyber and Joint forces
- Ensure operators actively study adversary capabilities, TTPs, and doctrine as part of their training—this requires direct support from and integration with the intelligence community
- Utilize space aggressors for force-on-force training against a professional thinking adversary replicating known and predicted threats, and adversary CONOPs and TTPs on a recurring basis
- Actively participate in Weapons and Tactics conferences (WEPTACs), Tactics Review Boards (TRBs), and RTRBs
- Participate in appropriate wargames to enhance understanding of future warfighting concepts

Although wing, group, squadron, flight, and mission commanders have oversight of their training programs, each spacecrew member has a large responsibility to proactively maximize the benefit of their own training. Commanders at all levels will determine appropriate events and roles for spacecrew members. Regardless of training event type, spacecrew members are responsible for knowing, tracking, scheduling and executing all individual training requirements.

Spacecrew force management is another key component of RSP. Active spacecrew force management helps operational commanders assess and maintain the currency, proficiency and operational readiness of the force. To ensure the most experienced operators are integrated into operations, SMF dismantles the traditional divide between the operational crewforce and day staff, and assigns all operators to spacecrews. A few leadership positions and a few specialists who have roles that touch both dwell and the SMTF may still have a schedule that appears like traditional day staff, but even this portion of the force will be fully integrated into operations.

Another key to the SMF transformation is the separation of warfighting duties and Service-related activities. Traditionally, space operators divided their time, energy and focus among operational duties, recurring training and other Service-related duties, which sub-optimized performance in all activities. For example, spacecrews could not fully benefit from exercises because they had to time

share with real-world operations. Under SMF, the spacecrew force will divide time equally between combat rotations in the SMTF and dwell, which will focus on Service-related duties and training. Commanders at every level must actively monitor proficiency of their spacecrews while in the SMTF and direct necessary training drills to keep their crews proficient in their critical tasks.

### ***Dwell Period Activities***

A substantial dwell period ensures sufficient time to conduct the training necessary to prepare crews for the next SMTF rotation. Dedicating time for the spacecrew force to conduct a rigorous training regime is a cornerstone for mission success in a CDO environment. During dwell, operators must reestablish currency on weapon system tasks not observed during operations in the SMTF and accomplish positional, instructor and evaluator upgrade training for spacecrew who are ready for these responsibilities. The dwell period is also the time to participate in exercise planning conferences, engage in operator cross-talks and attend PME.

The primary purpose of the dwell period is to put spacecrew through a rigorous training cycle consisting of threat training, advanced courses to deepen their weapon system knowledge, tabletop exercises, training to better understand the CDO environment, operational integration training, environmental effects training and how adversaries may attempt to deny or disrupt mission accomplishment. This training must include large-force integration exercises like Red Flag where spacecrew will participate in realistic, force-on-force scenarios and scrimmages with other tactical and operational units and a professional adversary force simulating or replicating the threat.

### **Pre-SMTF Activities**

Prior to rotating into the SMTF, spacecrews will be assessed for SMTF readiness and preparedness for their warfighting mission. This verification is distinct and separate from an evaluation, which measures individual spacecrew member proficiency. The assessment is an appraisal of the entire crew's ability to perform CDR operations in the expected CDO environment for their upcoming SMTF rotation and should present realistic scenarios based on current and credible threat information that create most likely and most dangerous combat conditions. Squadron commanders will use this assessment as a tool to verify their spacecrews' readiness for entry into their SMTF rotation.

The SMF construct places tremendous responsibility on squadron and wing weapons officers to actively develop and oversee AT, and associated processes to develop a proficient spacecrew force capable of confronting any space threat. Our weapons officers must lead the spacecrew force by developing innovative training scenarios and deriving meaningful solutions to threats to increase the spacecrew force's ability to meet CDR mission objectives. SMF also places a premium on intelligence operators and analysts to facilitate AFSPC units becoming demanding customers of intelligence tasking, collecting, processing, exploitation and dissemination of space-related threat data. Intelligence personnel and data should be fully integrated into all spacecrew functions including

training, mission planning, execution and debriefing at all levels and over the near-, mid- and long-terms.

### ***Space Mission Force Organization and Command and Control***

The CAF and some MAF and AFSoF units present their forces to combatant commanders as Air Expeditionary Squadrons, Groups, Wings and Task Forces. Due to the nature of expeditionary operations, those forces periodically suspend their wartime mission, return to home station and are replaced by similarly qualified forces that recently finished training tailored to their assigned mission. The forces relieved of their contingency missions use their dwell period for AT and other service functions. These forces are assembled from combat capabilities organized into fundamental building blocks called Unit Type Codes (UTC).

Space Mission Forces will organize in similar fashion; however, because most space forces are neither "air" nor "expeditionary," they will create mission-specific warfighting UTCs, aggregated into a Space Mission Task Force and commanded by an SMTF/CC. Units subordinate to the SMTF will be organized into Space Mission wings, groups and squadrons. Commanders at these levels become dual-hatted for their CDRUSSTRATCOM missions and their service-retained duties.

### ***CONCLUSION***

Our nation faces current and future challenges in space that demand an immediate change in how we organize, train, equip and employ our forces. The SMF represents how we will meet these challenges. A concept, however, is only that without exacting execution by this entire command. Spacecrews are the tip of the AFSPC spear. I expect this MAJCOM to dedicate ourselves to execute this vital concept and, more importantly, to advance SMF well beyond our initial effort. Our Nation and our Air Force demand the presentation of expertly trained and professionally led spacecrews, capable of accomplishing their missions under combat conditions. I expect nothing less.