

**FM 3-14**  
(FM 100-18)

# **SPACE SUPPORT TO ARMY OPERATIONS**

**MAY 2005**

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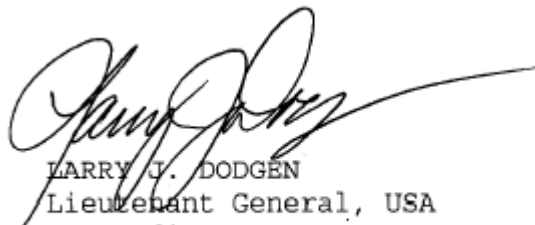
## Foreword

The Army is critically dependent on space capabilities to enable and enhance land warfare. Virtually every Army operation uses space capabilities to some degree. Today, we use space largely for its ability to enhance the effectiveness of our combat forces. We can communicate; navigate; target, find, and fix the enemy; anticipate weather; and protect our forces based on combat and support assets available from space. We also strive to control space so adversaries cannot overcome our asymmetrical advantages in space. Space provides tremendous leverage to the Army's land warfare capability.

The Army views space as a vertical extension of the battlefield and an integral part of the battlespace, one that has been especially instrumental during the ongoing global war on terrorism. The Army's transformation also integrates space into all phases of planning and operations as a core element of that process. The Army's future force, serving as part of the joint force, will be even more adaptable and lethal, leveraging the capabilities of the ultimate high ground. The nature of warfighting is changing rapidly, and the Army's strategic role in space is evolving as a result.

Our dependence on space will increase in the future as space-based capabilities enable the future force concepts of information superiority, enhanced situational awareness, and high-tempo, non-contiguous operations. Space use will increase as technology propels us toward more flexible and less expensive access, and development of more comprehensive space warfighting tools. History and the march of technology tell us that the time will come when we use space not only to enhance land warfighting capabilities, but also for direct combat, in other words, force application from space.

The doctrine contained in this field manual is an essential component of the Army's efforts to maximize the contributions that space capabilities bring to land warfare. It describes the work our soldiers do now to use current space capabilities effectively. It also provides the Army framework for success as we grow more sophisticated and capable in our employment of space capabilities. Development of this space doctrine is an important step along the Army's transformation journey.



LARRY J. DODGEN  
Lieutenant General, USA  
Commanding

# Space Support to Army Operations

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## Preface

This manual establishes guidance for employing space capabilities to support U.S. Army land warfighting dominance. It provides a general overview of space capabilities, reviews the direction for using space for national security purposes, and outlines the relevance of particular space capabilities to Army operations.

The doctrine in this manual documents Army thought for the best use of space capabilities. It provides traditional doctrine and a basis for advancing intellectual discussion and improvement of practical applications of space capabilities. This manual also contains tactics, techniques, and procedures outlining how to plan, prepare for, and execute space operations. The appendixes contain additional relevant information concerning use of space capabilities.

Space has domain characteristics vastly different from air, land, and sea. It would be misleading to capture in this document all that is done now with space and imply that is the end of it. New capabilities are commonplace in the space domain. Therefore, this manual is not a definitive "desktop" handbook for soldiers. It is important that soldiers continue to look to the future with responsiveness, adaptability, and flexibility toward what space can bring.

Unless this manual states otherwise, masculine nouns, and pronouns do not refer exclusively to men.

This manual applies to the Active Army, the Army National Guard (ARNG), and the U.S. Army Reserve (USAR). All soldiers, particularly senior operational commanders, their staffs, and space operations subject matter experts, will use this manual. Army forces will likely deploy this doctrine as part of a joint, interagency, or multinational military operation. Therefore, while this manual supports Army operations, it does so in the context of Army operations as part of a joint, interagency, or multinational task force.

The proponent for this field manual is the U.S. Army Space and Missile Defense Command (USASMDC). Send comments and recommendations on DA Form 2028 (*Recommended Changes to Publications and Blank Forms*) directly to—

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## PART ONE

# Principles

The objective of Army use of space is to support the Army's land dominance. Space is undeniably a critical element of Army operations. Moreover, the need for the Army to accomplish space operations is firmly established in policy and practice; in fact, many space capabilities are already well integrated into Army operations. The space mission areas are both critical and routine components of maneuver, stability, and support operations. Army space operations support Army and joint warfighting, and use of space capabilities is an inherently joint venture. This field manual is rooted in basic Army and joint doctrine that is characteristically progressive and evolving.

## Chapter 1

# Army Space Operations

Space is the newest of the warfighting media, alongside air, land, and sea. The harsh space environment, vast distances, and high speeds of orbiting satellites are all very different from what the Armed Forces deal with in the air, on land, and on or under the sea. Still, many of the principles that successfully guide operations in those environments are applicable to the space medium. The Army is committed to using space to its best advantage. Indeed the advantages are so great that it is clearly worthwhile to overcome the characteristic difficulties of the space environment. Use of space-based capabilities is not only common; it is critical, in Army operations.

## SECTION I – SPACE OPERATIONS OVERVIEW

1-1. Space-based capabilities contribute to all Army operations. The Army continually incorporates existing and emerging space capabilities to further improve the effectiveness of its operations. The Army executes space operations and contributes to establishing and maintaining space superiority consistent with land warfighting dominance needs.

1-2. The Army of today leverages space capabilities to accomplish a wide variety of missions. Space-based and space-enabled communications; position, velocity, and timing; environmental monitoring; intelligence, surveillance, and reconnaissance (ISR); and missile warning support are robust capabilities that continue to be necessities for success on the battlefield. Robust space capabilities are a prerequisite for the Army of the

future. They enhance information superiority and situational awareness, aiding high-tempo, noncontiguous, simultaneous distributed operations.

1-3. The medium of space begins above the atmosphere of the earth and extends infinitely outward. Practically, however, the area between 90 miles and 22,300 miles above the earth is used for orbiting earth satellites. This, generally, is *space* as the Army uses the term. Operationally, *space* most often indicates the practical use of space assets, including satellites in this orbital envelope. *Space assets* are satellites in orbit, the ground equipment that interfaces with them, and other ground systems performing space missions. *Space capabilities* are derived from those assets. *Space operations* are those enabling operations that create or present opportunities to employ space to enhance the warfighting potential of the U.S. military and its allies and friends.

1-4. *Space forces* are the space and terrestrial systems, equipment, facilities, organizations, and personnel necessary to access, use, and control space for national security (Joint Publication [JP] 1-02). Other personnel are directly involved in routinely using space-based capabilities but are not “space forces” per the joint definition in JP 1-02. This includes satellite communications (SATCOM) equipment operators in signal battalions, satellite imagery analysts, and soldiers using global positioning system (GPS) equipment, for example. The reason for the distinction is that, as JP 3-14 indicates, Department of Defense (DOD) space forces “...are directed by [USSTRATCOM] component commanders...” whereas signal battalions, imagery analysts, and most soldiers are commanded by their Army Service component commander (ASCC) to the regional combatant commander or joint force commander, not by the United States Strategic Command (USSTRATCOM) ASCC.

1-5. Space operations are conducted by space forces and by personnel who routinely facilitate the use of space assets, bringing satellite communications; position, velocity, and timing; environmental monitoring; space-based intelligence, surveillance, and reconnaissance (ISR), and missile warning to the warfighter. Army space operations fall into two general categories: controlling space and exploiting space. Controlling space means to affect space to benefit U.S. efforts or detract from adversary efforts. Exploiting space is making space-based capabilities available to benefit operations.

1-6. The ability of the Army to capitalize on space systems, along with the ability to protect them and attack the adversary capability to use them, yield military power, and contribute to U.S. military space superiority. *Space superiority* is the degree of dominance in space of one force over another that permits the conduct of operations by the former and its related land, sea, air, space, and special operations forces at a given time and place without prohibitive interference by the opposing force (JP 1-02). The purpose of space superiority is to secure the freedom to take advantage of the capabilities provided by space systems (JP 3-14).