

## Introduction

---

*The Army's land power is hinged in space.*

---

General Gordon R. Sullivan

Throughout US history, the military services have fought to guard US national interests on land, on sea, and in the air. Historically, whoever held and used the "high ground" had a significant advantage over his adversaries. While holding high ground in itself does not ensure victory, it has restricted the enemy's freedom to maneuver. Space, the ultimate high ground, has joined land, sea, and air as a medium in which national defense can be prosecuted. Therefore, the Army has a vital interest in the farseeing aspects of space technology.

Space offers the Army unique or enhanced capabilities to achieve land dominance. Space systems provide communications, positioning and navigational data, early warning, weather, environmental, and surveillance and targeting capabilities that are essential for national security and the prosecution of land warfare. Space capabilities are particularly important where the operational area lacks the infrastructure to support Army operations. These capabilities apply across the entire spectrum of military operations, to include military operations other than war (MOOTW), and to all echelons of command. In the post-Cold War era, Army forces' effective use of space capabilities and products is as critical to global operations as land, sea, and air power are today.

The US Army has always played an important role in exploring and defending new frontiers. Its role in space is no exception. Army rocket development and early space exploration first received impetus when Dr. Wernher von Braun and other German scientists joined the Army's missile effort in 1945. In the following years, the Army engineered the first US space rockets and led the development of space technology.

In 1958, the Army space program became the nucleus of the newly created National Aeronautics and Space Administration (NASA), whose task was to direct all civilian space development activities. Later that year, NASA, using an Army Redstone missile, launched the first operational US satellite. In 1961, another modified Redstone missile carried Commander Alan B. Shepard, USN, the first American astronaut to reach space, into suborbital flight.

Although during the intervening years the Army's role and influence in space activities declined as NASA and other civil and military agencies assumed its space responsibilities, Department of Defense (DOD) established the US Army Satellite Communications Agency in April 1961. The agency was the single point of control to accomplish research, development, and production

of both strategic and tactical satellite communications ground terminals for use by all military services. In addition, the Army continued research and development efforts that focused on air and strategic ballistic missile defense and on the tactical applications of national space capabilities. The Army Space Program Office (ASPO), established in 1973, was given responsibility for leveraging national capabilities as part of the Joint Tactical Exploitation of National Capabilities (TENCAP) Program. The result has been the fielding of a number of systems that support tactical operations. The US Army Strategic Defense Command (USASDC) represented the outgrowth of the Army's early involvement in the Ballistic Missile Defense (BMD) Program.

The development of the Army's AirLand Battle doctrine in the 1980s focused on a battlefield that was expanding in depth and lethality. Studies and operations completed in the 1980s showed that space systems incorporating maturing technologies could be used to support many of the Army's missions. These studies identified the space-related technologies and capabilities applicable to Army missions and functions. Army leaders used this information to chart a course for developing and acquiring the necessary technologies and capabilities. By-products of this effort resulted in the publication of *The Army Operational Concept for Space Operations* in 1987 and the first version of *The Army Space Architecture* in 1988. These two documents incorporated the most promising ideas and space-related technologies that could be developed to fulfill Army requirements.

In support of its evolving role in space, the Army formed additional organizations to-

- Provide training and to perform combat development of potential space technologies.
- Serve as the proponent for space-development activities.
- Provide operational support and interaction with unified operations.
- Perform the research, development, testing, and evaluation of strategic and tactical BMD and other space-related technologies.
- Provide forces for space support operations for DOD.

In 1985, DOD established the United States Space Command (USSPACECOM). A short time later, the Army Space Agency was created and became the Army's representative to USSPACECOM. Designated the US Army Space Command (USARSPACE) in 1988, it became the Army component to USSPACECOM. In 1993, USARSPACE and USASDC were combined into one organization designated the US Army Space and Strategic Defense Command (USASSDC). Within this organization, USARSPACE remains the operational component to USSPACECOM, and USASSDC remains the Army leader in missile defense technology, continuing its research and development to support both strategic and tactical missile defense systems.

The 1993 version of FM 100-5 recognizes the contribution of space to Army operations. Under this emerging doctrine, space-related systems no longer merely supplement and complement terrestrial systems; in many instances they are the primary means, with terrestrial systems serving as backup. In some instances, space systems will replace existing and programmed

terrestrial systems. This utility of space capabilities must be considered and articulated in operational plans and programmatic decisions. The doctrinal shift to a force projection Army has profound implications for the use of space assets, as manifested during Operation Desert Storm and operations in Somalia and Macedonia. Lessons learned from recent operations and emerging conceptual and doctrinal changes dictate the full integration of space-related capabilities into future operations. The Army will continue to “leverage” existing space capabilities and exploit technological opportunities to improve the execution of its missions in a global environment.

Associated space research and product development continue to provide invaluable technologies applicable across the full range of military operations. A variety of space systems is now available to support strategic communications, early warning of missile launches, the National Command Authorities (NCA), and the military services’ reconnaissance requirements. This involvement in space activities over the years has provided the Army an appreciation of space and an understanding of the value of space systems to its operations.

In the past, space assets primarily supported echelons above corps. This is no longer true. Today, most missions and every soldier on the battlefield can benefit from space systems and products. To improve its effectiveness and increase the survivability of its forces, the Army must continue to exploit the military potential of space systems.

In the future, because of the speed with which a crisis may erupt and the lethality of the weapons used, the need for better and near-real-time information will be more demanding. Space systems will provide the Army the leverage needed to conduct more effective and efficient missions in the area of information operations (IO). Space-based assets can provide decision makers with a more accurate assessment of the enemy situation before a state of war is declared or a decision made to commit land forces, thereby enhancing the possibility of successfully achieving the first objective of the Army: deterrence without a round expended or the loss of one life. Only through space can the information needed to assure such a victory be distributed in the time, quantity, and array required. Exploitation of space-based assets requires diligent planning to ensure accurate and timely information is available when needed. Every effort should be made during peacetime to ensure that the Army force of the future will be properly equipped, trained, and manned to conduct successful IO or any other military operations.