USAWC STRATEGY RESEARCH PROJECT

# USSTRATCOM: THE CONTINUING TRANSFORMATION OF MILITARY SPACE

by

Commander Eugene D. Costello
United States Navy

Colonel William G. Pierce
Project Advisor

This SRP is submitted in partial fulfillment of the requirements of the Master of Strategic Studies Degree. The views expressed in this student academic research paper are those of the author and do not reflect the official policy or position of the Department of the Army, Department of Defense, or the U.S. Government.

U.S. Army War College
CARLISLE BARRACKS, PENNSYLVANIA 17013

# Report Documentation Page

*Form Approved*
*OMB No. 0704-0188*



| 1. REPORT DATE | 2. REPORT TYPE | 3. DATES COVERED |
|---|---|---|
| **03 MAY 2004** | | **-** |

| 4. TITLE AND SUBTITLE | 5a. CONTRACT NUMBER |
|---|---|
| **USSTRATCOM: The Continuing Transformation of Military Space** | 5b. GRANT NUMBER |
| | 5c. PROGRAM ELEMENT NUMBER |
| 6. AUTHOR(S) | 5d. PROJECT NUMBER |
| **Eugene Costello** | 5e. TASK NUMBER |
| | 5f. WORK UNIT NUMBER |
| 7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) | 8. PERFORMING ORGANIZATION REPORT NUMBER |
| **U.S. Army War College,Carlisle Barracks,Carlisle,PA,17013-5050** | |
| 9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) | 10. SPONSOR/MONITOR'S ACRONYM(S) |
| | 11. SPONSOR/MONITOR'S REPORT NUMBER(S) |

12. DISTRIBUTION/AVAILABILITY STATEMENT
**Approved for public release; distribution unlimited**

13. SUPPLEMENTARY NOTES

14. ABSTRACT
**See attached file.**

15. SUBJECT TERMS

| 16. SECURITY CLASSIFICATION OF: | | | 17. LIMITATION OF ABSTRACT | 18. NUMBER OF PAGES | 19a. NAME OF RESPONSIBLE PERSON |
|---|---|---|---|---|---|
| a. REPORT | b. ABSTRACT | c. THIS PAGE | | | |
| **unclassified** | **unclassified** | **unclassified** | | **24** | |

**ABSTRACT**

AUTHOR: CDR Eugene D. Costello

TITLE: USSTRATCOM: THE CONTINUING TRANSFORMATION OF MILITARY SPACE

FORMAT: Strategy Research Project

DATE: 19 March 2004 PAGES: 24 CLASSIFICATION: Unclassified

Since the end of the Cold War, the United States has experienced a dramatic shift in strategic and military threats. The terror attacks of September 11, 2001 have identified that emerging threats of the new millennium, threats led by rogue nations and terror organizations, are capable of inflicting substantial economic and physical damage to the United States. The organization and employment of space systems, which are crucial in the strategic, operational and tactical levels of military operations, need to transform in order to meet the increasing command, control and information dissemination requirements. This paper will determine if the merger between U.S. Space Command and U.S. Strategic Command enables the Department of Defense to transform its military space operations in order to engage and defend against the emerging asymmetric threats of the 21st century. This study will review the military objectives for transformation, previous examples of transformations in the military space program and the external factors which drove the current need for transformation. This paper concludes that the U.S. Space Command and U.S. Strategic Command merger is an evolutionary transformation that not only meets the requirements for today but will also enable future transformations in space operations as emerging capabilities and threats develop.

TABLE OF CONTENTS

## USSTRATCOM: THE CONTINUING TRANSFORMATION OF MILITARY SPACE

> The new Strategic Command, with its focus on space and information capabilities, will improve our ability to warn and defend against all manner of attack—nuclear and non-nuclear. In establishing this capability, we are leaning forward, not back. Here, today, you begin to effect a real transformation—a transformation that will improve our command and control, our intelligence and our planning—in short, a fundamental step forward to better meet the security environment that will define the 21st Century.
>
> —Deputy Secretary of Defense Paul Wolfowitz
> Offutt AFB, Omaha, NE, October 1, 2002

The purpose of this research paper is to respond to the criticism surrounding the merger between U.S. Space Command (USSPACECOM) and U.S. Strategic Command (USSTRATCOM) which the Department of Defense (DoD) directed in the Unified Command Plan (UCP) released in April 2002. Specifically, this paper will determine if the merger enables DoD to transform its military space operations in order to engage and defend against the emerging asymmetric threats of the 21st century. The organization and employment of space systems, which are crucial in the strategic, operational and tactical levels of military operations, will need to transform in order to meet the increasing command, control and information dissemination requirements. Long-term advocates of military space operations believe that the organizational realignment will have the negative consequence of reducing the importance and relevance of space operations. Former U.S. Senator Bob Smith, an outspoken advocate of military space, epitomizes this viewpoint by publicly criticizing DoD for marginalizing the importance of military space.[1] Secretary of Defense Donald Rumsfeld counters this criticism and endorsed the merger as an example of military transformation. Secretary Rumsfeld believed that the missions of USSPACECOM and USSTRATCOM had "evolved to the point where merging the two into a single entity would eliminate redundancies in the command and control structure and streamline the decision making process." [2]

In this study, I will review the origin and military objectives for transformation, previous examples of transformations in the military space organization and the external factors which drove the current requirement for transforming the military space organization. The paper will then discuss the new USSTRATCOM organizational structure and determine its impact on military space operations and support using the DoD transformation objectives, the external factors and future requirements. After presenting issues of potential future military space transformations, the paper will conclude that the USSPACECOM and USSTRATCOM merger

was an evolutionary transformation that not only meets the requirements for today but will also enable future transformations in space operations as emerging capabilities and threats develop.

**REQUIREMENTS FOR TRANSFORMATION**

Transformation of the military is a critical component of the United States' overall national strategy. Even before the terror attacks of September 11, 2001 the United States military was transitioning from a large-standing military that was organized and trained to fight in the Cold War toward that of a smaller, flexible, and highly-trained force capable to respond to the growing threats posed by rogue nations and smaller scale contingencies. The rapid increases in technology and the emerging asymmetric threats, to include transnational terror organizations, require the United States to improve the weapons systems and force employment techniques that served our military during the Cold War. Political and economic constraints, to include calls for reduced military budgets and capturing the "peace dividend" to support domestic programs have also played a role in shaping the smaller force structure. Simply stated, the requirements for transformation can be traced not only to the emerging threats but also to political, economic and technological factors. Transformation is necessary to ensure that the United States continues to leverage its overwhelming technological and military advantages in future operations.[3] Responding to all the external factors impacting the military, the Quadrennial Defense Review Report (QDR) released in September 2001 formalized the requirements and introduced DoD's six critical operational transformation goals:

- Protect critical bases of operations and defeating CBRNE weapons and their means of delivery;
- Assure information systems in the face of attack and conducting effective information operations;
- Project and sustain U.S. forces in distant anti-access or area-denial environments;
- Deny enemies sanctuary by providing persistent surveillance, tracking, and rapid engagement with high-volume precision strike, against critical mobile and fixed targets in all weather and terrains;
- Enhance the capability and survivability of space systems and supporting infrastructure; and
- Leverage information technology to develop an interoperable, joint C4ISR architecture.[4]

In order to rapidly and reliably meet the operational transformational goals without substantial increases to the military budget, the QDR also identified the following four pillars that form the foundation of DoD's transformation:

- Strengthening joint operations;
- Experimenting with new approaches to warfare;

- Exploiting U.S. intelligence advantages through multiple intelligence collection assets, global surveillance and reconnaissance, and enhanced exploitation and dissemination; and
- Develop transformational capabilities through innovations in DoD processes.[5]

President George W. Bush's National Security Strategy (NSS) released in September 2002 also amplifies the importance of the transformation of America's national security institutions including the Defense Department as one of the nation's key issues. He asserts that we must be prepared to "develop assets such as advanced remote sensing and long-range precision strike capabilities…to conduct information operations and protect critical U.S. infrastructure and assets in outer space." [6] The requirements and transformation goals identified in the QDR and NSS are directly applicable to the roles and missions assigned to the military space and strategic force organizations. The underlying intent of strengthening joint operations, exploiting intelligence advantages through global surveillance and reconnaissance, and developing transformational capabilities through innovations in the DoD processes, to include organizational structure and command and control, provide the impetus for the USSPACECOM and USSTRATCOM merger.

**DEFINING TRANSFORMATION**

Although there are several definitions of transformation being used within the DoD, this paper will use the generally accepted definition and the one most frequently referenced in articles and instructions. The DoD Transformation Planning Guidance defines transformation as "a process that shapes the changing nature of military competition and cooperation through new combinations of concepts, capabilities, people, and organizations that exploit our nation's advantages and protect against our asymmetric vulnerabilities to sustain our strategic position."[7] The United States Air Force, the largest contributor to military space forces and the designated Executive Agent for Space within DoD, believes that transformation can be accomplished by developing and leveraging new technologies, changing doctrine and employing innovative tactics and by changing the organizational structure.[8]

Transformation is generally divided into two general categories. The first category is defined as revolutionary transformation or using the popular term a "revolution in military affairs" (RMA). A RMA is typically defined as producing a dramatic or "order of magnitude" change in the method warfare is conducted that it makes current tactics and conventional warfare equipment obsolete. RMA's are not dependent on external factors such as emerging threats. Instead they combine cutting-edge technologies with conceptual and organizational changes to exploit the maximum potential of the technology. [9]

The second category of transformation is defined as evolutionary transformation. An evolutionary transformation is dependent on external factors such as security environments and threats. Evolutionary transformation requires that any new technology, doctrine and tactics, organizational change, or any combination of the three must effectively respond to and engage the external factors that initiated the transformation.[10] An example of an evolutionary transformation would be the reorientation of the military from a Cold War force to a 21st century forced capable of defeating conventional and asymmetric threats. This paper examines the USSPACECOM and USSTRATCOM merger in terms of an evolutionary transformation since the organizational alignment was in response to changing security environments, threats and other external political factors. According to the Office of Force Transformation, evolutionary transformation "anticipates and creates the future and deals with the co-evolution of concepts, processes, organizations and technology. A profound change in any one of these areas necessitates change in all."[11] Evolutionary transformations are valuable to organizations since they enable them to remain relevant and viable in complex and dynamic environments. It is important to note that transformation is a dynamic process without a clearly identifiable beginning or end. Secretary Rumsfeld points out that since transformation is a continual process, there is no defining moment when DoD is transformed.[12] These properties of transformation make measuring the results of any transformation effort very difficult. Currently there are no quantifiable methods or accepted metrics to measure either evolutionary or revolutionary transformations. As the U.S. Air Force describes in their FY03-07 Transformation Flight Plan, "determining what is transformational comes down to qualitative judgment calls by informed senior leadership based on a set of agreed standards."[13] In spite of the recent attention being placed on transformation, it is not a new concept to the military. I suggest that the military space program, which began as a RMA (exploiting space for military purposes), has undergone numerous evolutionary transformations throughout its brief fifty year history.

**MILITARY SPACE REVIEW AND PREVIOUS TRANSFORMATIONS**

The military space program can trace its origin to the years immediately following WWII when former German rocket scientists led by Dr. Werner von Braun were relocated to the United States in order to develop American rocket systems. The RAND Corporation, then a division of Douglas Aircraft Corporation, conducted the first space feasibility study in 1946 for the U.S. Army Air Force. They determined that a satellite program was possible based on advances the scientists were making in rocket technology.[14] After Congress passed the National Security Act of 1947, the newly formed DoD gave full responsibility for all space-related

research and development to the Research and Development Board's Committee on Guided Missiles, a joint organization managed by both the U.S. Navy and U.S. Army. By the early 1950s all three services, Army, Air Force and Navy, had dependent space programs established.[15] Despite the fact that each service was making progress in their individual programs: the U.S. Army's Jupiter Rocket program; the U.S. Navy's Project Vanguard and the Viking Launch Vehicle; and the U.S. Air Force's Atlas and WS-117L satellite reconnaissance program (precursor to Satellite and Missile Observation System [SAMOS]); the United States lost the first Cold War contest in space to the Soviet Union. The launch of Sputnik I in October 1957 shocked the Eisenhower Administration and prompted an extensive review of all national space policies, organizations and programs.[16] The first evolutionary transformation of military space organization began due to the Soviet Union's emerging space capabilities.

An organizational transformation was quick and decisive. The Advance Research Projects Office (ARPA) was established in 1958 to centrally manage all DoD space research and development projects. ARPA was intended to eliminate duplication of efforts in military space programs and end the developing inter-service competitions.[17] The authority of ARPA was limited to military space programs only with the creation of the National Aeronautic and Space Administration (NASA) in 1958. NASA was given authority of all space programs with civil applications to include manned space flight.[18] The DoD Reorganization Act of 1958 established the Office of the Director of Defense Research and Engineering (DDR&E) and in 1959, the Secretary of Defense transferred the management all of ARPAs research and development programs the DDR&E.[19] The Kennedy Administration continued to increase the DDR&E's authority over military space programs with the 1961 release of DoD Directive (DoDD) 5160.32 "Development of Space Systems" which granted DDR&E authority to establish guidelines for service participation in researching military space systems. In 1961 the U.S. Air Force was named as executive agent for military space development since they were responsible for over 90% of military space programs.[20]

The U.S. Air Force, not surprisingly due to their large participation in military space programs, was the first service to establish a command for space operations. The idea of a separate organization to manage space operations dates back to the 1977 "Navaho Chart" space policy study which outlined the relationships of all Air Force organizations that were involved in space support. The underlying purpose of this study was to consolidate redundant and eliminate unnecessary space organizations.[21] This led to follow-on studies designed to eliminate the North American Aerospace Defense Command (NORAD) and Aerospace Defense Commands (ADCOM). Due to political restrictions, principally the involvement of Canadian

participation in NORAD, these studies recommended keeping NORAD and eliminating ADCOM. In October 1979, ADCOM was disestablished and the air defense forces and space defense systems were transferred to Tactical Air Command and Strategic Air Command.[22] Additional Air Force studies in 1980 and 1981 concluded that "although the Air Force has conducted space operations for the last fifteen years, the service was inadequately organized for operational exploitation of space."[23] Air Force Space Command was officially established in September 1982 and was responsible for "managing and operating space assets, consolidating space planning, defining requirements, providing operational advocacy and ensuring the close interface between research and operational users."[24] General James Hartinger, commander of NORAD, was selected as the first commander of Air Force Space Command. Air Force Chief of Staff, General Lew Allen, commented in a news release "it is the Air Forces' hope and belief that (Air Force) Space Command will develop quickly into a unified command."[25] On 23 September 1985, the Joint Chiefs of Staff granted General Allen's wish and established the U.S. Space Command (USSPACECOM) to "institutionalize the use of space in U.S. deterrence efforts."[26] According to Joshua Boehm of the System Planning Corporation, the following three external factors are believed to have led to the creation of USSPACECOM:

> First, President Reagan's 1983 Strategic Defense Initiative (SDI) highlighted the importance of strategic aerospace defense. There was a growing sentiment among civilian and military planners that a unified space command would be an appropriate operational focus for SDI planning and operations. Second, although the USAF controlled 70 percent of all DoD space systems and 80 percent of the funding by the mid-1980s, there was increased political pressure on the USAF to share space program management with other services. Finally, the effectiveness of third generation space systems garnered considerable support from the services for a centralized DoD entity that would be responsible for space systems.[27]

The decision to assign or "dual-hat" the Air Force Space Command Commander and NORAD Commander was further exacerbated with the creation of USSPACECOM and assigning the Air Force Space Command Commander as the Commander of USSPACECOM. This practice will become one of the external factors leading to the USSPACECOM and USSTRATCOM merger. By examining the recent external factors leading up to the decision to merge the two commands, we can see that the USSPACECOM and USSTRATCOM merger is actually a continuation of the evolutionary transformation that has defined the military space program since its beginning.

**RECENT EXTERNAL FACTORS REQUIRING MILITARY SPACE TRANSFORMATION**

The external factors that led to the USSPACECOM and USSTRATCOM merger and the military space transformation range include political, economic and external threat factors. The political and economic factors began when Congress, increasingly concerned in the 1990s with the oversight and management of the United States military space programs, established the "Commission to Assess United States National Security Space Management and Organization" in accordance with section 1623 of the National Defense Authorization Act for Fiscal Year 2000 and pursuant to Public Law 106-65.[28] The Commission's members were appointed by the House of Representatives' and the Senate's Chairman of the Committees on Armed Services and the Secretary of Defense, who consulted with the Director of Central Intelligence. The membership of the Commission included former senior military officers and defense and intelligence community personnel whose broad backgrounds in space system acquisitions, management and operations represented all military and intelligence services.[29] According to its charter and amendments originating from the National Defense Authorization Act of FY 2001, the Commission was to assess the following specific tasks related to military space programs:

- The manner in which military space assets may be exploited to provide support for U.S. military operations,
- The potential costs and benefits of establishing:
    - an independent military department and service dedicated to national security space mission,
    - a separate corps within the Air Force dedicated to the national security space mission,
    - any other changes to the existing organizational structure of the DoD for national security space management and organization.
- The advisability of:
    - eliminating the requirement for specified officers in the U.S. Space Command to be flight rated,
    - the establishment of a requirement that all general or flag officers of the U.S. Space Command have experience in space, missile, or information operations,
    - rotating the command of U.S. Space Command among the service.[30]

After completing six months of interviews and investigations the Commission identified the following five matters of unanimous concern:

- The present extent of U.S. dependence on space demands that the U.S. national security space interests be recognized as a top national security priority.
- DoD and the Intelligence Community are not yet arranged or focused to meet the national security space needs of the 21st century.
- The relationship between the Secretary of Defense and the Director of Central Intelligence is critical to the development and deployment of space

capabilities needed to support the President in times of peace, crisis and conflict.

- The U.S. has not taken the actions required to develop needed space capabilities and to maintain and ensure continuing superiority.
- The U.S. needs to invest in science and technology resources, specifically to expand and deepen the pool of military and civilian talent in space, engineering and systems operations.[31]

The Commission concluded that the organizational establishment within DoD was unable to support the national and military requirements for space. Specifically, despite the growing dependence on space-based capabilities, the organizational structure within the Air Force placed responsibility for controlling the U.S. military space operations in a flight-rated four-star officer who was "triple-hatted" as USSPACECOM Commander, NORAD Commander and as the Commander, Air Force Space Command. Additionally, the organization within the Air Force placed space systems acquisition in direct competition with high dollar Air Force weapon systems such as B-2 stealth and C-17 heavy-lift aircraft. While not directly stated, the commission implied that space operations ranked behind the traditional Air Force (and other Services for that matter) warfare missions and the organizational structure only perpetuated this relegation to second tier status. Specific Commission recommendations that directly apply to the USSPACECOM and USSTRATCOM merger include:

- The Air Force should assign command of Air Force Space command to a four-star officer other than USSPACECOM Commander/NORAD Commander
- The Secretary of Defense should end practice of assigning only Air Force flight-rated officers to position of USSPACECOM Commander/NORAD Commander opening that assignment to an officer from any Service with an understanding of combat and space operations.[32]

DoD concurred with and implemented these recommendations in April 2002 when a commanding general assumed command of Air Force Space Command separate from the USSPACECOM and NORAD Command responsibility. [33]

Increasing asymmetric threats, to include terrorism, was the primary external factor that led to the sweeping revision of the Unified Command Plan (UCP) released in April 2002. The UCP is reviewed and amended as required every two years. Considered to be the most significant restructuring of military commands since WWII, the plan recognized the importance of transformation to meet the emerging threats and was the directive that established the merger between USSPACECOM and USSTRATCOM. The UCP directed the establishment of U.S. Northern Command (NORTHCOM) and assigned it responsibility for defending the land, sea, and aerospace of the continental United States and Alaska, the seaward approaches to the United States out to 500 miles, Canada, Mexico, the Gulf of Mexico and large areas within the

Caribbean. In addition, NORTHCOM is responsible for the civil-military planning and support to federal, state and local agencies involved with homeland defense and security. The NORTHCOM commander due to his aerospace defense mission also assumed command of NORAD.[34] With USSPACECOM no longer required to serve as the NORAD commander, and with NORTHCOM standing up its headquarters in Colorado Springs, the organizational structure that had existed with USSPACECOM officers "dual-hatting" as the NORAD staff equivalents created additional manning and organizational issues. The merger between USSPACECOM and USSTRATCOM which was considered for some time, placed nuclear deterrence and launch indications under the control of one commander, and alleviated potential staffing conflicts with the NORTHCOM organization. The Post-Cold War reduction of the nuclear weapons inventory and the strategic targeting requirements, combined with the loss of NORAD mission responsibility of USSPACECOM no longer justified two separate unified commands. Admiral James O. Ellis, Commander of U.S. Strategic Command, poignantly describes the most important external factor and the overall goal for transforming military space to "exploit the strong and growing synergy between the domain of space and strategic capabilities and to produce a single war fighting combatant command with a global perspective."[35]

**HISTORY AND TRANSFORMED MISSION OF STRATEGIC COMMAND**

The history of U.S. Strategic Command dates back to the beginning of the nuclear arms race with the Soviet Union following WWII. The U.S. Army Air Force's Strategic Air Command (SAC), was established in March 1946 and was based around a long-range bomber force as the primary deterrent to the Soviet Union. As missile technologies matured in the late 1950s, the USAF developed and deployed its fleet of intercontinental ballistic missiles while the U.S. Navy deployed its Polaris ballistic missile submarines. DoD created the Joint Strategic Target Planning Staff (JSTPS) in 1960 to serve as the single organization tasked with planning and targeting all of the U.S. assets capable of delivering nuclear weapons. Responsible for the creation of the Single Integrated Operational Plan, JSTPS was collocated with SAC at Offutt Air Force Base, Nebraska and managed the U.S Strategic Nuclear Triad until the end of the Cold War when in June 1992 SAC and JSTPS were disestablished. U.S. Strategic Command, established on 1 June 1992, placed all planning, targeting, and employment authority of the strategic forces under the control of a single unified commander.[36]

The establishment of the new U.S. Strategic Command on 1 October 2002 was more of a synergy of the previous USSPACECOM and USSTRATCOM than a merger. The transformed mission is to:

> establish and provide full-spectrum global strike, coordinated space and information operations capabilities to meet both deterrent and decisive national security objectives. Provide operational space support, integrated missile defense and specialized planning expertise as well as global command, control, communications, computers, intelligence, surveillance and reconnaissance to the joint warfighter.[37]

U.S. Strategic Command is organized around a Joint Forces Headquarters for Information Operations and directorates in Combat Support, Global Operations, Policy Resources & Requirements and Strike Warfare. The integration of the military space forces assigned to U.S. Strategic Command within the four directorates demonstrates the importance and increased role military space operations serve in this transformation. Specific functions within each of the directorates include:

- Combat Support – provides acquisition; contracting, combat logistics and readiness; command, control, communications and computers for strategic forces; intelligence; and global command and control to support command missions.
- Global Operations - coordinates the planning, employment and operations of DoD strategic assets and combines all current operations, global command and control operations, and intelligence operations. Oversees the Command Center, the Joint Intelligence Center, Current Operations, and the National Airborne Operations Center operations.
- Policy, Resources & Requirements – develops policy to support mission execution.
- Strike Warfare – provides integrated global strike planning, and command and control support to deliver rapid, extended range, precision kinetic (nuclear and conventional) and non-kinetic (elements of space and information operations) effects in support of theater and national objectives. Includes the operation of the Targeting Intelligence Center.[38]

The assigned space forces from U.S. Army Space and Missile Defense Command, Naval Network and Space Operations Command, and 14th Air Force continue to provide missile warning, communications, navigation, weather, imagery and signals intelligence to the joint warfighter and other unified commands.[39] Space operations are not listed as a primary directorate in the USSTRATCOM organization, instead they are fully integrated into each of the directorates. While some critics perceive this as a reduction in the importance of space operations, Secretary Rumsfeld and informed DoD space operators contend that the opposite is true. To have simply combined the existing functional organizations of USSPACECOM and USSTRATCOM into a "merged" organization would have eliminated the synergistic gains achieved in the new USSTRATCOM organization.

## MEASURING TRANSFORMATION/RESULTS OF MERGER

Measuring the transformation results of the USSPACECOM and USSTRATCOM merger can be accomplished by determining if the stated goals and strategic objectives for transformation are met: if the transformation responds to the external factors, and if the overall operational effectiveness of military space support is assessed to be increased. The organization created by the transformed U.S. Strategic Command addresses and meets the operational requirements listed in the QDR and the NSS by strengthening joint space and information operations. The integration of space support and information systems provided by the military space community with the global reconnaissance and strike assets from the strategic forces provides persistent surveillance, tracking, and rapid engagement with high-volume precision strike capability within a single unified command. Leveraging this capability through the joint C4ISR architecture operated by U.S. Strategic Command provides near real-time targeting and strike capability to the other combatant commanders and gives them the capability to experiment with new tactics and approaches to warfare while maintaining its current position of information superiority.

The outcome of the transformation can also be measured by observing the impact space operations have played during the continued global war on terrorism and the recent war with Iraq. The targeting decision cycle was reduced from hours to minutes when compared to the first Gulf War. The ability to fuse national, strategic and theater level sources of intelligence and warning allowed the combatant commander to execute time critical missions against high interest targets. The importance and utilization of military space operations has increased and become more accessible to the Joint Force under the U.S. Strategic Command organization. The evolutionary transformation aligns space operations to support future trends in warfare to include Network Centric Warfare and Effects-Based Operations. Military space operations have become more integrated into the network, and therefore more important to the overall military capability.

## POTENTIAL FOR FUTURE MILITARY SPACE TRANSFORMATIONS

The evolutionary transformation of military space is not over with the merger between USSPACECOM and USSTRATCOM. The rate of technological development and the increasing number of competitors in the space and technology fields will inevitably produce RMAs such as micro-satellite technology, space-based lasers or other high energy weapon systems, and developments in information warfare which will require DoD to continue the evolutionary transformation of military space.

The number of nations and commercial firms capable of challenging the United States in space continues to grow. Commercial launch services and separate space-based industries have allowed countries and organizations to launch satellites and purchase space related products such as near real-time imagery. This trend is more alarming when reviewing the declining satellite launch capability of the U.S. military. The number of launch vehicles in inventory and the grounding of the Space Shuttle fleet following the Columbia tragedy in 2003 will have long-term implications that may reduce the near space advantage that the United States currently holds. Recent successes in the Chinese manned-space program have reestablished the U.S. desire to continue space exploration and establish strategic lunar outposts. This may eventually revive the argument for establishing a separate area of responsibility for space.

The proliferation of satellite jamming devices and lasers capable of interfering with satellite payloads could serve as another external factor that will require evolutionary transformations. Future military potential for space such as a space-based missile defense system or space-based directed energy weapons could even lead to the creation of a separate space force, an idea that some space separatists in the Air Force have been advocating for some time. The decision to pursue space-based weapons would support such a case when the technology is mature and fielded.

**SUMMARY AND CONCLUSIONS**

Effective and relevant organizations constantly adapt to external factors in the political, economic and technical environments in order to overcome emerging threats. By examining the history of the military space program, and understanding that transformation is a continuing process, this study concludes that the merger between USSPACECOM and USSTRATCOM is actually a continuation of the evolutionary transformation that has defined the military space program since its beginning. DoD has again proven through the USSPACECOM and USSTRATCOM merger that it is capable of transforming military space operations to support the current and long-term national security requirements. As future capabilities and threats emerge, DoD will be able to continue the transformation efforts required to remain technologically and militarily superior to any potential adversary into the foreseeable future.

WORD COUNT=4751

## ENDNOTES

[1] William Scott, “Joining Space and Strategic Commands Comes With a Price,” *Aviation Week and Space Technology Online* 17 June 2002; available from <http://cndyorks.gn.apc.org/yspace/articles/combiningcommands2.htm >; Internet; accessed 19 October 2003.

[2] Department of Defense, “DoD Announces the Merger of U.S. Space and Strategic Commands,” *DoD News Release* 26 June 2002; available from <http://www.defenselink.mil/news/Jun2002/b06262002_bt331-02.html>; Internet; accessed 19 October 2003.

[3] Department of Defense, *Transformation Planning Guidance*, (Pentagon, Washington, D.C.: Secretary of Defense, April 2003), 4.

[4] Department of Defense, *Quadrennial Defense Review Report*, (Pentagon, Washington, D.C.: Secretary of Defense, 30 September 2001), 30.

[5] Ibid., 32.

[6] George W. Bush, *The National Security Strategy of the United States of America* (Washington, D.C.: The White House, September 2002), 29-30.

[7] Department of Defense, *Transformation Planning Guidance*, (Pentagon, Washington, D.C.: Secretary of Defense, April 2003), 3

[8] James G. Roche and John P. Jumper, *The USAF Transformational Flight Plan FY03-07*(Pentagon, Washington, D.C: HQ USAF/XPXT, Transformation Division), iv; available from <http://www.oft.osd.mil/library/library_files/documents_200_usaf_transformation_Pub_Release.pdf>; Internet; accessed 31 January 2004.

[9] Ibid., 2.

[10] Ibid., 2.

[11] Department of Defense, *Military Transformation, A Strategic Approach*, (Pentagon, Washington, D.C.: Director, Force Transformation, Office of the Secretary of Defense, Fall 2003), 8.

[12] Department of Defense, *Transformation Planning Guidance*, (Pentagon, Washington, D.C.: Secretary of Defense, April 2003), 1.

[13] James G. Roche and John P. Jumper, *The USAF Transformational Flight Plan FY03-07*(Pentagon, Washington, D.C: HQ USAF/XPXT, Transformation Division), 4; available from <http://www.oft.osd.mil/library/library_files/documents_200_usaf_transformation_Pub_Release.pdf>; Internet; accessed 31 January 2004.

[14] Joshua Boehm et al., *A History of United States National Security Space Management and Organization* Prepared for the Commission to Assess United States National Security Space Management and Organization. Available from <http://www.fas.org/spp/eprint/article03.html>; Internet; accessed 9 December 2003.

[15] Ibid.

[16] Ibid.

[17] Ibid.

[18] Ibid.

[19] Ibid.

[20] Ibid.

[21] Ibid.

[22] Ibid.

[23] Ibid.

[24] Ibid.

[25] Ibid.

[26] Department of Defense, U.S. Strategic Command, "U.S. Strategic Command History," available from <http://www.stratcom.af.mil/factsheetshtml/history.htm>; Internet; accessed 30 January 2004.

[27] Joshua Boehm et al., *A History of United States National Security Space Management and Organization* Prepared for the Commission to Assess United States National Security Space Management and Organization. Available from <http://www.fas.org/spp/eprint/article03.html>; Internet; accessed 9 December 2003.

[28] Commission to Assess the United States National Security Space Management and Organization, Pursuant to Public Law 106-65, *Report of the Commission to Assess the United States National Security Space Management and Organization* (Washington, D.C.: The Commission,11 January 2001), 1.

[29] Ibid., vii.

[30] Ibid., 2.

[31] Ibid., 99-100.

[32] Ibid., 85-97.

[33] General Accounting Office, *Defense Space Activities: Organizational Changes Initiated, but Future Management Actions Needed* (Washington, D.C.: U.S. General Accounting Office, April 2003), 28.

[34] W. Spencer Johnson, “New Challenges for the Unified Command Plan,” *Joint Forces Quarterly* Summer 2002 [journal on-line]; available from <http://www.dtic.mil/doctrine/jel/jfq_pubs/summer02.htm>; Internet; accessed 17 October 2003, 62-63, 67.

[35] Sonja Chambers, “Strategic, Space Commands Merge,” *American Forces Information Service, DefenseLink* 01 October 2002; available from <http://www.defenselink.mil/news/Oct2002/n10022002_200210021.html>; Internet; accessed 9 December 2003.

[36] Department of Defense, U.S. Strategic Command, “U.S. Strategic Command History,” available from <http://www.stratcom.af.mil/factsheetshtml/history.htm>; Internet; accessed 30 January 2004.

[37] Department of Defense, U.S. Strategic Command, “U.S. Strategic Command Snap Shot,” available from <http://www.stratcom.af.mil>; Internet; accessed 30 January 2004.

[38] Ibid.

[39] Department of Defense, U.S. Strategic Command, “Military Space Forces,” available from <http://www.stratcom.af.mil/factsheetshtml/militaryspaceforces.htm >; Internet; accessed 30 January 2004.

**BIBLIOGRAPHY**


Boehm, Joshua, Craig Baker, Stanley Chan and Mel Sakazaki. *A History of United States National Security Space Management and Organization* Prepared for the Commission to Assess United States National Security Space Management and Organization. Available from <http://www.fas.org/spp/eprint/article03.html>. Internet. Accessed 9 December 2003.

Bush, George W. *The National Security Strategy of the United States of America.* Washington, D.C.: The White House, September 2002.

Center for Naval Analysis. *Report of the Panel to Review Naval Space: Space Capabilities for Critical Mission Support*. Alexandria, VA: Center for Naval Analyses, 2002.

Chambers, Sonja. "Strategic, Space Commands Merge," *American Forces Information Service, DefenseLink* 01 October 2002. Available from <http://www.defenselink.mil/news/Oct2002/n10022002_200210021.html>. Internet. Accessed 9 December 2003.

Dietrick, Kevin M., *Whence The Army's Role in Space?* Strategy Research Project. Carlisle Barracks: U.S. Army War College, 13 March 2001.

Furr, Bill "Past, Present, Future, Satellites become "high ground of Space" over last 30 years." *Army Space Journal* Vol. 2, No.2 (Summer 2003).

Gray, Collins S. *American Military Space Policy: Information Systems, Weapon Systems and Arms Control*. Cambridge, MA: Abt Books, 1982.

Hays, Peter L. *United States Military Space: Into the Twenty-First Century*. Institute for National Security Studies Occasional Paper. INNS: U.S. Air Force Academy, Colorado Springs, CO, September 2002.

Hays, Peter L. "What is Space Power and Does it Constitute a Revolution in Military Affairs?" *Journal of Military and Strategic Studies Online* Fall 2002. Journal on-line. Available from <http://www.stratnet.ucalgary.ca/Journal/2002/article1.html>. Internet. Accessed 23 September 2003.

Hawkins, Willis H. "More Rethinking of Space Policy," *The Marshall Institute Online* October 2000. Journal on-line. Available from <http://marshall.pjdoland.com/article.php?id=29&print=1>. Internet. Accessed 23 September 2003.

Johnson, W. Spencer "New Challenges for the Unified Command Plan" *Joint Forces Quarterly* Summer 2002. Journal on-line. Available from <http://www.dtic.mil/doctrine/jel/jfq_pubs/summer02.htm>. Internet. Accessed 17 October 2003.

National Commission to Assess the United States National Security, Space Management and Organization, Pursuant to Public Law 106-65. *Report of the Commission to Assess the United States National Security, Space Management and Organization*. Washington, D.C.: The Commission, 11 January 2001.

Roche, James G. Roche and John P. Jumper. *The USAF Transformational Flight Plan FY03-07.* Pentagon, Washington, D.C: HQ USAF/XPXT, Transformation Division. Available from <http://www.oft.osd.mil/library/library_files/documents_200_usaf_transformation_Pub_Release.pdf>. Internet. Accessed 31 January 2004.

Scott, William B. "Joining Space and Strategic Commands Comes With a Price," *Aviation Week and Space Technology Online* 17 June 2002. Available from <http://cndyorks.gn.apc.org/yspace/articles/combiningcommands2.htm >. Internet. Accessed 19 October 2003.

Singer, Jeremy. "Peters Criticizes Space Commission's Findings" *Space News* 22 Jan 01. Available from <http://space.au.af.mil/space-commission/peters.htm >. Internet. Accessed 17 October 2003.

U.S. Department of Defense, "DoD Announces Merger of U.S. Space and Strategic Commands" *DoD News* 26 June 2002. Available from <http://www.defenselink.mil/news/Jun2002/b06262002_bt331-02.html>. Internet. Accessed 19 October 2003.

U.S. Department of Defense. *Military Transformation, A Strategic Approach.* Pentagon, Washington, D.C.: Director, Force Transformation, Office of the Secretary of Defense, Fall 2003.

U.S. Department of Defense. *Transformation Planning Guidance*. Pentagon, Washington, D.C.: Secretary of Defense, April 2003.

U.S. Department of Defense, U.S. Strategic Command, "Military Space Forces." Available from <http://www.stratcom.af.mil/factsheetshtml/militaryspaceforces.htm >. Internet. Accessed 30 January 2004.

U.S. Department of Defense, U.S. Strategic Command, "U.S. Strategic Command History." Available from <http://www.stratcom.af.mil/factsheetshtml/history.htm>. Internet. Accessed 30 January 2004.

U.S. Department of Defense, U.S. Strategic Command, "U.S. Strategic Command Snap Shot." Available from <http://www.stratcom.af.mil>. Internet. Accessed 30 January 2004.

U.S. Department of Defense. *Quadrennial Defense Review Report*, Pentagon, Washington, D.C.: Secretary of Defense, 30 September 2001.

U.S. General Accounting Office. *Defense Space Activities: Organizational Changes Initiated, but Future Management Actions Needed.* Washington, D.C.: U.S. General Accounting Office, April 2003.

U.S. Joint Chiefs of Staff. *Joint Doctrine for Space Operations*. Joint Pub 3-14. Washington, D.C.: U.S. Joint Chiefs of Staff, 9 August 2002.

Watt, Barry D. *The Military Use of Space: A Diagnostic Assessment*. Washington, D.C.: Center for Strategic and Budgetary Assessments, February 2001.