

AU/AWC/RWP182/98-04

AIR WAR COLLEGE

AIR UNIVERSITY

WHO WILL COMMAND THE HIGH GROUND?  
THE CASE FOR A SEPARATE AREA OF RESPONSIBILITY  
FOR SPACE

by

Mark A Morris, Lt Col, USAF

A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

Advisor: Dr. William A. Martel

Maxwell Air Force Base, Alabama

April 1998

## Report Documentation Page

<b>Report Date</b> 01APR1998	<b>Report Type</b> N/A	<b>Dates Covered (from... to)</b> -
<b>Title and Subtitle</b> Who Will Command the High Ground? The Case for a Separate Area of Responsibility	<b>Contract Number</b>	
	<b>Grant Number</b>	
	<b>Program Element Number</b>	
<b>Author(s)</b> Morris, Mark A.	<b>Project Number</b>	
	<b>Task Number</b>	
	<b>Work Unit Number</b>	
<b>Performing Organization Name(s) and Address(es)</b> Air War College Maxwell AFB, AI 36112	<b>Performing Organization Report Number</b>	
<b>Sponsoring/Monitoring Agency Name(s) and Address(es)</b>	<b>Sponsor/Monitor's Acronym(s)</b>	
	<b>Sponsor/Monitor's Report Number(s)</b>	
<b>Distribution/Availability Statement</b> Approved for public release, distribution unlimited		
<b>Supplementary Notes</b>		
<b>Abstract</b>		
<b>Subject Terms</b>		
<b>Report Classification</b> unclassified	<b>Classification of this page</b> unclassified	
<b>Classification of Abstract</b> unclassified	<b>Limitation of Abstract</b> UU	
<b>Number of Pages</b> 59		

## **Disclaimer**

The views expressed in this academic research paper are those of the author and do not reflect the official policy or position of the US government or the Department of Defense. In accordance with Air Force Instruction 51-303, it is not copyrighted, but is the property of the United States government.

## *Contents*

	<i>Page</i>
DISCLAIMER .....	ii
PREFACE .....	iv
ABSTRACT .....	vi
INTRODUCTION.....	1
BACKGROUND.....	8
The Unified Command Plan .....	8
The Birth of US Space Command .....	9
The Persian Gulf War – the First “Space War” .....	11
A Time of Change – General Charles A. “Chuck” Horner as USCINCSpace .....	13
Template for the Future – Joint Vision 2010 and its Progeny .....	16
WHY A SEPARATE AREA OF RESPONSIBILITY FOR SPACE? .....	19
US Strategic Interests are at stake.....	20
Why an Area of Responsibility for Space when none for Air, Land, and Sea?.....	22
Changes that Warrant Transitioning Space to Regional Status .....	23
Seams Between Adjacent AORs?.....	25
Summary .....	27
THE CASE AGAINST SPACE AS A SEPARATE AREA OF RESPONSIBILITY .....	30
Seams of Various Types are still a Concern .....	30
Existing UCP is not the Proper Forum for Change.....	33
“Areas of Responsibility are about Warfighting not Physics”.....	35
International and Domestic Concerns .....	37
Prudent Moves .....	38
Summary .....	39
CONCLUSIONS, AND RECOMMENDATIONS.....	42
Conclusions.....	42
Recommendations.....	46
GLOSSARY .....	48
BIBLIOGRAPHY .....	50

## *Preface*

This paper originated from an internet article passed to me in September 1997, which discussed the controversy concerning the proposed designation of space as a separate geographic area of responsibility during the biennial review of the Unified Command Plan. Being a long-time fighter aviator in the USAF, I had a limited appreciation for the capabilities, and force multiplying effects, space-based assets provide terrestrial warfighters. However, I was almost totally unaware of the significant economic investment our nation has in space as well as how crucial it will be in future conflicts to guarantee US access to space while denying that of our enemies. Thankfully, I had access to many people who were knowledgeable of these areas and willing to take their time to discuss the issue of space as an independent area of responsibility. I was also delighted to find so many people who were willing to review my early drafts and their comments certainly improved the quality of this paper.

I am particularly grateful to Dr. William C. Martel and Colonel (Retired) Ted Hailes, of the Air War College Center for Technology and Strategy, for their coaching and support as I struggled to conceptualize the ideas for this paper as well as their patience in the editing process. I would also like to thank Colonel Vic Budura and Lieutenant Colonel Tom Clark, who comprised the ringleaders of the space mafia at the Air War College. They were supportive in the formulation of this paper and opened innumerable doors to contacts both within the Air Staff and the United States Space Command without

which, this paper would not have been possible. Many of the good ideas you find here are from these and many other individuals too numerous to list. Any omissions or mistakes, of course, are mine, and mine alone.

### *Abstract*

From its inception in 1985, United States Space Command has been a functional combatant command. This served America well when US military space capabilities were in their relative infancy, and the primary mission of space forces was strategic warning through the ability to “see” within the boundaries of sovereign nations. However, increasing capabilities, and the hard won lessons of the Persian Gulf War, made the US military aware of the vast potential for space-based and space-derived capabilities across the full spectrum of military operations. Indeed, the template for the future of the US military, *Joint Vision 2010*, with its tenets of dominant maneuver, precision engagement, full-dimensional protection, and focused logistics will be impossible to achieve without robust space capabilities and their significant force multiplying effects.

But as the military dependence of space has increased dramatically, no US combatant command has been given responsibility for the *region of space*. Only by having a single commander leading an organization with the requisite expertise and resources for dealing with the unique responsibilities inherent to the region can the US military deal effectively with the challenges of space. This paper will examine the necessity of transitioning USSPACECOM to regional command status, responsible for the sixth area of responsibility, the region of space.

## Chapter 1

### Introduction

*Air and space power is the force of the future, and the Air Force—the nation’s Air Force—is America’s only full service air force that is dedicated to providing air and space power as the sole purpose of its existence.*

General Ronald R. Fogelman  
15<sup>th</sup> USAF Chief of Staff

On a late summer day in July 1944, U.S. Army Chief of Staff General George C. Marshall, a long time supporter of air power, wrote a memo to his old friend General H. H. “Hap” Arnold that would initiate a change in the history of American air power.<sup>1</sup> Marshall wrote: “The AAF should now assume responsibility for research, development, and development procurement.”<sup>2</sup> Arnold, the architect of the modern U.S. Air Force, had been a long time advocate and supporter of advanced research and development for the Army Air Forces (AAF). With the European War winding down, he had already turned his efforts to long-range planning for the AAF. He saw the Marshall memo as an opportunity to act and selected America’s leading aeronautical scientist, Theodore von Karman, to head the Army Air Force Long Range Development Program.<sup>3</sup> The Karman Committee would become the AAF Scientific Advisory Group and in December 1945, publish *Toward New Horizons*.<sup>4</sup>

This proved to be a seminal document for the Air Force, providing not only a research and development blueprint for the fledgling service, but putting it on a revolutionary path toward the region of space with its emphasis on the development of leading edge technology. This revolutionary path was pursued aggressively throughout the 1950's and 60's leading to many of the advances seen in our national civil and military space programs. Inter-continental ballistic missiles (ICBMs), satellites, and anti-ballistic missile capability were but a few of the possibilities foreseen in *Toward New Horizons*.<sup>5</sup>

From their inception, Air Force space capabilities were crucial to force enhancement and mission support. Space assets allowed the United States to communicate more efficiently, navigate with greater precision, and monitor and predict the weather with unprecedented accuracy. However, the primary value of space forces was seen as their ability to “see” within the boundaries of sovereign nations.<sup>6</sup> This was the age of the “sanctuary school” of thought for space forces that dominated American space activities for almost 25 years.<sup>7</sup> The basic foundations of the sanctuary school were that space would be used only for non-aggressive purposes, and that unrestricted satellite overflight was a guaranteed right.<sup>8</sup> There was no need for specific command and control of space forces. In fact, establishing an operational organization to employ space forces was seen as inherently dangerous and destabilizing since it implied that the environment would be used for military activities.<sup>9</sup>

As space capabilities became more robust, the United States became heavily dependent on the use of spacecraft for conducting military operations. Space based systems facilitated command, control and communications. They provided

reconnaissance, electronic intelligence, early warning of missile launches and invaluable treaty verification information. Without a reliable network of satellites, U.S. forces would be essentially deaf, dumb, and blind on a global scale. However, spacecraft also had severe military shortcomings. They did not satisfy military requirements for availability, reliability, supportability, and survivability.<sup>10</sup> The lack of an organization of space forces also produced numerous complications, including serious deficiencies in command and control, excessive costs due to the pervasive research and development mindset of space operations, and unnecessary duplication of efforts by the various government organizations involved in space. In response, the Air Force established the Space Command (AFSPACECOM) in September 1982. However, there was another underlying reason for establishing the new command. According to Under Secretary of the Air Force Edward C. Aldridge, the creation of a Space Command was recognition of the fact that space could no longer be viewed as “a nonhostile, benign environment.”<sup>11</sup>

The establishment of AFSPACECOM and the publication of service doctrine that emphasized the survivability of space systems marked the beginning of the end of the sanctuary school of thought for American space forces.<sup>12</sup> The military had always been anxious to exploit any new medium, and space was seen to be no exception.<sup>13</sup> Further recognition of the end of the sanctuary school resulted in establishing United States Space Command (USSPACECOM) in September 1985.

USSPACECOM was established as a functional, unified command combining the Army, Navy, and Air Force space organizations. The initial roles for USSPACECOM included “integration of tactical warning and space operations, including *control of space*, direction of space support activities, and planning for ballistic missile defense.”<sup>14</sup>

Though envisioned from its inception as a supporting command, the initial charter of USSPACECOM included the warfighting mission of space control. The warfighting missions were further expanded by the Department of Defense Space Policy of 1987. This document supported and amplified national space policy by explicitly recognizing space as a medium within which the conduct of military operations in support of national security can take place, just as it has on land, sea, and in the air. Additionally, it provided policy guidelines for the development of specific capabilities to fulfill the military space functions of space support, force enhancement, space control, and force application.<sup>15</sup> The challenge of turning policy into practical military options was a different matter for USSPACECOM. Space was seen as a highly classified, technically demanding endeavor with capabilities little understood or appreciated by the vast majority of warfighters. However, change was on the horizon. The Persian Gulf War proved to be a turning point for the integration of space capabilities into warfighting and the education of America's warriors.

Not until the Persian Gulf War were U.S. warfighters able to use the full array of civil, military, commercial, and intelligence satellites to support combat operations. Space systems carried over 90 percent of the intertheater communications and an undetermined, but substantial portion of the intratheater communications.<sup>16</sup> Satellite intelligence data was essential for planning the air campaign, critical for early warning of SCUD ballistic missile attacks, and aided in determining enemy positions and activities.<sup>17</sup> Global Positioning System (GPS) satellites provided precise position information essential for navigation over an almost featureless desert terrain. While space "came of age" for warfighters in the Gulf War, the situation was far from perfect.

USSPACECOM traced some of the most significant problems from the Gulf War to a core issue—normalizing space operations for theater operators.<sup>18</sup> For example, since very little basic and operational space doctrine existed, space preplanning for wartime situations lagged well behind space technology. The Air Force has sought to help remedy this deficiency with the publication of Air Force Manual 1-1, *Basic Air Force Doctrine*, in 1992 and most recently with the publication of Air Force Doctrine Document (AFDD) 1 in September 1997. The Air Force is still trying to push its long overdue operational level doctrine statement, AFDD 2-2, *Space Operations*, through the coordination process. Even worse is the status of Joint Pub 3-14, *Joint Doctrine; Tactics, Techniques, and Procedures (TTP) for Space Operations*, with the 15 April 1992 Final Draft still languishing in the coordination process.<sup>19</sup>

Other more positive changes have been made by the individual services following the Gulf War to correct deficiencies and to provide better spacepower support to warfighters. The senior Air Force leadership founded Fourteenth Air Force to serve as the service's warfighting component to USSPACECOM. The Air Force also activated the Space Warfare Center at Falcon AFB, Colorado, to refine doctrine, develop tactics, formulate concepts and demonstrate systems and technologies that improve military operations and the employment of space forces in warfare. Additionally the Air Force established space support teams (SSTs) to provide direct liaison between AFSPACECOM and the warfighting CINCs. Following the Air Force, the Army and Navy established their own space support teams. In general, USSPACECOM, all Service Components, and the national intelligence agencies have attempted to provide better

support to the combatant commands and more efficient pre-planning of existing space forces.<sup>20</sup>

Another, more controversial, change has been advanced by the Commander-in-Chief of United States Space Command (USCINCSpace) to bolster the ability of the command to support the warrior as well as placing itself squarely in a warfighting role. Under his guidance, USSPACECOM has aggressively sought designation of the region of space as a separate and distinct geographic Area of Responsibility (AOR), which would move it from a functional command to a regional command status.<sup>21</sup> USSPACECOM would thus become the United State's designated military representative for the region of space, with all the powers and responsibilities associated with regional AOR status under the Unified Command Plan.

This study explores the controversy of designating the region of space as the sixth geographic area of responsibility under the Unified Command Plan. The arguments supporting and opposing regional status will be presented and synthesized, then recommendations made for establishing space as an independent area of responsibility.

### Notes

<sup>1</sup> Maj Dik Daso, USAF, "Origins of Airpower; Hap Arnold's Command Years and Aviation Technology, 1936-1945", *Airpower Journal* Vol. XI, No. 3, Fall 1997, Airpower Research Institute, Maxwell AFB, AL

<sup>2</sup> Marshall to Arnold and Gen Brehon B. Somervell, 26 July 1944, Murray Green Collection, Library of Congress, Washington, D.C., roll 12

<sup>3</sup> Dr. I. A. Getting interview with Maj Dik Daso, USAF, 9 November 1994.

<sup>4</sup> Daso, *ibid.*, 110

<sup>5</sup> Dr. Michael H. Gorn, "Prophecy Fulfilled: "Toward New Horizons" and Its Legacy", Air Force History and Museums Program, 1994

<sup>6</sup> Lt Col David E. Lupton, USAF (Ret.), "On Space Warfare", Air University Press, Maxwell AFB, AL, Jun 1988, 35

<sup>7</sup> Lupton, *ibid.*, 51

<sup>8</sup> Lupton, *ibid.*, 35

<sup>9</sup> Lupton, *ibid.*, 44

## Notes

<sup>10</sup> Lt Gen Richard C. Henry, USAF, “The Role of the Air Force in Space,” an unclassified plenary address presented at the Fifth Air University Airpower Symposium, *Proceedings of the Fifth Air University Airpower Symposium, 23-25 February 1981*, ed.

<sup>11</sup> Leonard Famiglietti, “Benign Space Concept Ends with Creation of SPACECOM”, Air Force Times, 12 July 1982, 23.

<sup>12</sup> AFM 1-6, Military Space Doctrine, 15 October 1982

<sup>13</sup> “Military Space”, Brassey’s Air Power: Aircraft, Weapons Systems and Technology Series, Vol. 10, Lyn Dutton, et al, Brassey’s (UK), 1990, 185.

<sup>14</sup> “The History of the Unified Command Plan 1946-1993”, Joint History Office, office of the Chairman of the Joint Chiefs of Staff, Washington, DC, February 1995, 96 (Italics added)

<sup>15</sup> Department of Defense, “Department of Defense Space Policy,” Washington, D.C., Government Printing Office, 10 March 1987, 1-2

<sup>16</sup> Thomas A. Kearney and Elliot A. Cohen, “Gulf War Air Power Summary Report,” Washington D.C., Government Printing Office, 1993, 193

<sup>17</sup> General Merrill A. McPeak, address during the SPACE TALK '94 Briefing, 16 September 1994

<sup>18</sup> “US Space Command Operations Desert Shield and Desert Storm Assessment (S/NF),” Peterson AFB, CO: USSPACECOM, 31 January 1992, 65-67. Information extracted from report is unclassified.

<sup>19</sup> Joint Chiefs of Staff (JCS), *Joint Doctrine; Tactics, Techniques, and Procedures (TTP) For Space Operations*, Washington DC: JCS, 15 April 1992, Final Draft

<sup>20</sup> Ibid., VI-5

<sup>21</sup> General Howell M. Estes, III, interview with Aviation Week and Space Technology, 6 August 1997

## **Chapter 2**

### **Background**

#### **The Unified Command Plan**

First established in 1946, the Unified Command Plan was a natural follow-on to the system of combined command that was developed by the Americans and British and proved so effective during the Second World War. The primary impetus for establishing unified command over U.S. military forces worldwide stemmed from the Navy's dissatisfaction with the divided responsibilities that characterized the military situation in the Pacific. Service rivalries prevented the subordination of either General of the Army Douglas MacArthur as Commander in Chief, US Army Forces, Pacific or Fleet Admiral Chester W. Nimitz as Commander in Chief, US Pacific Fleet.<sup>1</sup>

The Unified Command Plan called for a single commander, responsible to the Joint Chiefs of Staff, assisted by a joint staff, and exercising command over all units of his assigned force, regardless of Service. The chain of command was further clarified by the Department of Defense Reorganization Act of 1958, which established a clear line of command from the President through the Secretary of Defense, with the Joint Chiefs of Staff as the Secretary's operational staff. The commanders of unified and specified commands were made responsible to the President and the Secretary of Defense for

carrying out assigned missions and were delegated full “operational command” over forces assigned to them.<sup>2</sup>

Used to organize U.S. forces for operations in both peace and conflict, the Unified Command Plan establishes combatant commands with either geographic or functional responsibilities. For geographic (regional) commands, the plan defines an area of responsibility (AOR) which is “the geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct operations.”<sup>3</sup> Other combatant commands are assigned functional responsibilities, such as transportation, special operations, or nuclear deterrence. Functionally oriented combatant commands can operate across all geographic regions or can provide forces for assignment to other combatant commanders. Currently there are five regional combatant commands: Atlantic, Central, European, Pacific and Southern Commands. The functional combatant commands include Strategic, Special Operations, Transportation and Space Commands.

### **The Birth of US Space Command**

In April 1983, General James Hartinger, Commander-in-Chief, Aerospace Defense Command, as well as Commander, Air Force Space Command, proposed organizational moves toward a unified space command. On 7 June 1983, General Lew Allen, the Air Force Chief of Staff, urged an immediate JCS recommendation to establish a unified space command to “consolidate the mission areas of space control, space support, force application and force enhancement, and exercise operational control over all related systems developed for military application.”

The Air Force advocated a single command, consolidating space functions from all the services. However, the Army, Navy and Marine Corps reported no major problems with the existing space organization and had reservations about the creation of a new unified command that would be dominated by the Air Force.<sup>4</sup> They did agree that while command arrangements for space appeared to be adequate during the near term, some deficiencies should be corrected. Clearer command and control over space defense ought to be established; a joint planning staff for space should be created; and the Joint Chiefs of Staff should assess what changes in command arrangements ought to be made.

After reviewing the situation, the Joint Chiefs of Staff recommended establishing a unified space command by November 1, 1985. This action was endorsed by both Defense Secretary Casper W. Weinberger, and President Ronald W. Reagan. US Space Command was formally activated on September 23, 1985, which established a single operational military organization to oversee and operate Department of Defense space forces.<sup>5</sup>

USSPACECOM was established as a functional command with worldwide responsibilities that was not bounded by any single, currently existing, area of operations. Although the initial charter for the command included the warfighting mission of space control, no capability existed to apply force in or from space. Space control activities would be limited to tracking and classifying objects in orbit, and terrestrial operations against hostile satellite control and relay stations if required. Force enhancement and support were the primary missions, at least as perceived by those outside the command. The early years of the USSPACECOM were characterized by the migration of missions from other commands, most notably the ballistic missile defense mission,<sup>6</sup> but space was

still looked upon as a highly classified and little understood undertaking by the typical warfighter. This perception would soon be highlighted in the approaching conflict in the Persian Gulf.

### **The Persian Gulf War – the First “Space War”<sup>7</sup>**

Many of the space-based systems and organizations that were conceived, built, and operated for strategic deterrence during the Cold War were used in the Persian Gulf theater of operations to support Operations Desert Shield and Desert Storm.

Communication satellites handled 85 percent of the total inter- and intratheater communications load.<sup>8</sup> Satellite communications allowed coordination of widely dispersed air, sea, land and special operations forces into a coordinated and comprehensive campaign plan, relayed logistical information over long distances, and enabled the rapid dissemination of ballistic missile attack warnings. Without space-based communications, the rapid transfer of battlefield information that was so crucial to the success of the “hundred-hour ground war” could not have been achieved. However, many months were required to forge this communication system because pre-war campaign plans did not adequately account for space-based communications.<sup>9</sup> Satellites had to be repositioned or reallocated, and commercial communication satellites leased to handle the load. Thousands of ground terminals had to be transported into the theater because they had not been deployed with the field units.<sup>10</sup>

Weather information inside the Kuwaiti Theater of Operations was almost exclusively obtained from Defense Meteorological Satellite Program assets. This information was crucial to the mission planners and to the operational units as they developed and executed the air and ground campaigns.<sup>11</sup>

Precise navigation in the nearly featureless terrain that dominated the region was made possible by the partial constellation of Global Positioning System (GPS) satellites then in orbit. The GPS system provided accurate three-dimensional positional data to coalition forces,<sup>12</sup> which greatly aided the planning and execution of a quick, lethal, and decisive campaign. Indeed, the GPS receiver would prove to be “the most popular new piece of equipment in the desert.”<sup>13</sup>

Another space asset crucial to conduct of the Gulf War and more importantly to holding the Coalition together by keeping Israel from entering the conflict, was the Defense Support Program (DSP) satellite system. These satellites detected Iraqi Scud missile launches by sensing the heat “plume” from the missile with its infrared detection system. This data was downlinked via satellite and ground stations to the North American Aerospace Defense (NORAD) command center. The DSP satellites gave “precious minutes to military and civilian authorities in both Saudi Arabia and Israel so that emergency alarms could warn of impending attack.”<sup>14</sup> The biggest obstacle to incorporating the DSP warning capability was the lack of a communications network to get the warning from NORAD back to the combat theater. Although a system was pieced together as early as August 1990, it took time to refine warning procedures.<sup>15</sup> As General Charles A. Horner, commander of coalition air forces during the Persian Gulf War, was to say in retrospect, “I was already aware of the danger from Scuds before we went to the Gulf, but it never occurred to me to use DSP assets to provide warning of Scud attacks...But shame on me, I should have known.”<sup>16</sup>

Multiple lessons were garnered from analysis of the space operations supporting the Gulf War, but Vice Admiral William Dougherty compiled one of the most

comprehensive in his article titled *Storm from Space*. He concluded that space capabilities played a broad role in supporting both tactical and strategic operations during the conflict, and that US dependence on space systems will continue to grow in the future. Additionally, the American military needed improved space systems for immediate support to troops and assembled forces, upgrades to early warning systems, a more responsive space launch capability, and improved space based wide area surveillance. Finally, US forces need to develop an ability to protect U.S. space assets while selectively denying an adversary the use of space capabilities.<sup>17</sup>

One issue Vice Admiral Dougherty did not address is of paramount importance. In the Gulf War US forces faced an opponent that did not comprehend the force multiplying effects of American space based assets. The United States military feverishly used the time between the Iraqi invasion of Kuwait and the onset of the coalition air and ground campaigns to correct many of the deficiencies created by our lack of planning and foresight for space capabilities. In future conflicts, adversaries will not allow US forces six months to prepare an effective space architecture before the shooting starts.

### **A Time of Change – General Charles A. “Chuck” Horner as USCINCSpace**

When confirmed as USCINCSpace, General Charles Horner brought a wealth of experience with him to his new job. A fighter pilot that had commanded USAF organizations through the numbered air force level, he possessed a warrior’s perspective and mentality. More importantly, he commanded all US air forces in the Persian Gulf War as the air component commander of United States Central Command. General Horner had first-hand experience with the importance of space capabilities and the

asymmetric advantage it provided allied forces in areas as wide-ranging as communications, navigation, terrain analysis, weather forecasting, command and control, and target selection, among others. He was also intimately familiar with the growing pains that coalition forces had experienced with integrating space capabilities into combat operations.<sup>18</sup>

As part of his aggressive plan to remold USSPACECOM, General Horner sought to “normalize” space operations, bringing them in-line with daily military operations. “We had to get away from this idea of cheering everytime a (space) launch was successful and make space operations routine, like flying ops.”<sup>19</sup> His goal was to break down the majority of the myths and secrecy surrounding space operations and make space responsive to the needs of the warfighter. Additionally, he understood the need to educate the warfighter as to what space could and was doing to support military operations.

Part of his plan involved space force reorganization. While unable to dictate the administrative organization of his assigned units from the sister services, as the commander of AFSPACECOM, General Horner could reorganize his USAF forces. When AFSPACECOM was established, many of the units that were reassigned to the new command retained their traditional research and development style organizational structures that had worked effectively when their primary missions had been strategic warning and systems development in a highly classified, limited access environment. However, making the command responsive to the warfighter was the new goal, and this called for organizations that the warfighter could relate to. Air Force space units were

reorganized into flights, squadrons, and wings. Additionally, the Fourteenth Air Force was established, which became the warfighting arm of USSPACECOM.

General Horner also noted shortfalls in education and doctrinal development for the command. Part of his plan to remedy this problem was the establishment of the Space Warfare Center (SWC) at Falcon AFB, Colorado. Along the lines of the long established Air Warfare Center at Nellis AFB, Nevada, the SWC would become the education and doctrine development center for space forces. Educating the services as a whole about space capabilities and what space could bring to the fight would be a more challenging task. This would involve expanding the curriculum at all levels of professional military education, from pre-commissioning and technical school training up through the nation's war colleges. The integration of space forces would have to be expanded in all joint and combined exercises. For the first time, US warfighters would be able to practice the integration of space capabilities before the onset of hostilities.

From his experience as the coalition forces air commander during the Gulf War, General Horner was acutely aware of the lack of space experience and awareness on the combatant command planning staffs. He sought to remedy this shortfall by introducing the Space Support Team (SST) concept. The mission of the SST was to articulate space capabilities and help ensure their effective integration in exercise and campaign plans. The Space Support Team would provide required space expertise directly to a supported commander, in a package tailored to the size and scope of an exercise or real-world contingency. While awareness of space capabilities were, and are, becoming more ingrained in the American military, the way of conducting future warfare was also under review.

## **Template for the Future – Joint Vision 2010 and its Progeny**

The collapse of the Soviet Union and subsequent end of the Cold War combined with fiscal realities to produce a drastic downsizing of the American military. As the only remaining superpower, the US will have to deal with a wide range of potential challenges around the globe. The search for how best to meet these challenges with the reduced force structure resulted in *Joint Vision 2010* (JV 2010), which is the template for the evolution of the US Armed Forces.<sup>20</sup>

Going one step further, USSPACECOM combined the National Space Policy with JV 2010 to develop USSPACECOM Vision 2020. It advocates four operational concepts as crucial to continued space dominance, which include control of space, global engagement, full force integration, and global partnerships.

Likewise, the Air Force and AFSPACECOM analyzed the operational concepts of JV 2010 and used them to define new core competencies to meet the air and space challenges of today as well as preparing for those of tomorrow.<sup>21</sup> Upon examination, one can clearly see that the connection running between the guidance provided in JV 2010, USSPACECOM's Vision 2020 and the Air Forces' core competencies is the exploitation of space capabilities. As an illustration, dominant maneuver will not be possible if the enemy knows our every move. We must deny the enemy access to space and to our dispositions and plans through the successful execution of space control and space-based information warfare. Conversely, space-derived information will allow us to know where to maneuver, with what strength, at what time, and with what forces to achieve the greatest impact on the enemy. Similarly, full-dimensional protection, precision engagement, and focused logistics will be impossible without USSPACECOM's ability

to achieve space control, full force integration, and provide the required information via space-based systems and services.<sup>22</sup>

Space is crucial to the efficiency of American military capabilities and will be even more so in the future.<sup>23</sup> But who speaks for the region of space and space requirements for the American warfighter? USSPACECOM, while the lead agency for US military space matters, does not have responsibility for the *region of space* due to its status as a functional command, limiting its ability to conduct and control space operations. Now is the time to turn our focus to the controversy of establishing space as the sixth area of responsibility.

#### Notes

<sup>1</sup> “The History of the Unified Command Plan 1946-1993”, Joint History Office, Office of the Chairman of the Joint Chiefs of Staff, Washington, DC, February 1995, 11-12

<sup>2</sup> Ibid., 28

<sup>3</sup> Joint Pub 3-0, “Doctrine for Joint Operations”, Office of the Chairman of the Joint Chiefs of Staff, Washington, DC, 1 February 1995, GL-3

<sup>4</sup> “The History of the Unified Command Plan 1946-1993”, Joint History Office, Office of the Chairman of the Joint Chiefs of Staff, Washington, DC, February 1995, 96

<sup>5</sup> Ibid., 96

<sup>6</sup> Ibid., 97

<sup>7</sup> Craig Covault, “Desert Storm Reinforces Military Space Direction,” Aviation Week & Space Technology, 8 April 1991, 42 (Quote by General Merrill A. McPeak)

<sup>8</sup> Thomas S. Moorman, Jr., “Space: A New Strategic Frontier,” Airpower Journal, Spring 1992, 19

<sup>9</sup> Lt Col Steven J. Bruger, “Not Ready for the First War—What About the Second?,” Naval War College Review, Winter 1995, Vol. XLVIII, No. 1, 76

<sup>10</sup> Ibid., 76

<sup>11</sup> U.S. Department of Defense, “Conduct of the Persian Gulf War, Final Report to Congress,” Washington DC, April 1992, K-40

<sup>12</sup> James W. Canan, “Space Gets Down to Earth,” Air Force Magazine, August 1990, 33

<sup>13</sup> VAdm William A. Dougherty, “Storm from Space,” U.S. Naval Institute Proceedings, August 1992, 51

<sup>14</sup> Bruger, *ibid.*, 78

<sup>15</sup> Dougherty, *ibid.*, 50

## Notes

<sup>16</sup> James W. Canan, "Space Support for the Shooting Wars," Air Force Magazine, April 1993, 32

<sup>17</sup> Dougherty, *ibid.*, 48-53

<sup>18</sup> James W. Canan, "Space Support for the Shooting Wars," Air Force Magazine, April 1993, 32-33. Canan's quote of then USCINCSpace General Charles "Chuck" Horner sums up the challenges facing his command after the experiences of the Gulf War. General Horner noted, "What we have to do is change our emphasis from strategic war to theater war. We have to get over the cold war and make sure we're equipping and training and organizing to fight the kind of war that's probably going to be thrust upon us. All of us in the space community must concentrate our thinking on how we can directly support the warfighters."

<sup>19</sup> General Charles Horner, USAF (Ret.), quoted from presentation to the Air War College, September 1997

<sup>20</sup> "Joint Vision 2010," Chairman of the Joint Chiefs of Staff, Washington DC, undated, Foreword by CJCS. JV 2010 advocates four operational concepts (dominant maneuver, precision engagement, full-dimensional protection, and focused logistics) as key to future success for the American military.

<sup>21</sup> "Global Engagement: A Vision for the 21<sup>st</sup> Century Air Force," Department of the Air Force, Washington DC, undated, Introduction. These core competencies include air and space superiority, global attack, information superiority, rapid global mobility, precision engagement, and agile combat support.

<sup>22</sup> Speech by General Howell M. Estes, III, USCINCSpace, presented to Air Force Association Annual Symposium, Los Angeles, California, 18 October 1996

<sup>23</sup> Phillip A. Odeen, et al, "Transforming Defense: National Security in the 21<sup>st</sup> Century," Report of the National Defense Panel, Arlington Virginia, December 1997. The National Defense Panel assessment of the May 1997 Quadrennial Defense Review (QDR) reaffirmed the critical nature of space to the future of American warfighting stating, "Space is clearly of great importance to national security and we must maximize the effectiveness of functions carried out in space. Moreover, its value and range of uses will almost certainly increase exponentially over the next two decades. Access to space-based information allows us to better apply the military and civilian systems we currently have as well as those in the acquisition stream. Threats to space access and our space-based systems include computer "hacking", electronic jamming, and future laser and kinetic energy systems. One can expect threats in space to increase as the technology grows. It is the Panel's view that the use of space and vulnerability to space threats received insufficient attention in the QDR. The (Defense) Department needs to develop a strategy for maintaining access to space. Military strategy and doctrine in the 21<sup>st</sup> Century will be effective and viable only if space is addressed as a frontier vital to the warfighter."

## Chapter 3

### Why a Separate Area of Responsibility for Space?

Regional combatant commands exist to plan, prepare and conduct operations and employ forces to accomplish military missions and responsibilities that are assigned and authorized by the President.<sup>1</sup> The 1995 report of the Commission on Roles and Missions provided further guidance on requirements for establishing an area of responsibility (AOR) for a combatant command. The commission found that AORs should correspond to areas of recognized or likely strategic interest to the US and include adequate land, air, and sea area to allow the commander the means to meet his responsibilities. Additionally, distinctions between geographic and functional commands should be maintained, i.e. functional commanders should not have an assigned Area of Responsibility. Finally, no seams should exist that might split areas of strategic interest.<sup>2</sup>

“If it isn’t broke, don’t fix it” is an axiom that has been extensively used regarding the proposed change of USSPACECOM from a functional to a regional command. From a military point of view, the overriding reason for enacting any change should be to increase the overall combat capability of all US military forces, not just those assigned to USSPACECOM. This study uses the four areas addressed by the Committee on Roles and Missions report to assess the benefit of making the transition of USSPACECOM to regional combatant command status.

## **US Strategic Interests are at stake**

Americans today are far more reliant on space-based systems and information than many in this country appreciate. The average US citizen depends on space assets each day for entertainment, communications, education, weather forecasting, and other information. American business is tied into a global economic market that is reliant on satellites for information relay, monitoring and maintaining national and international markets, international financial transactions, and money transfers. Planned business consortia, such as the proposed Iridium constellation of satellites (providing worldwide cellular phone, paging, fax, and internet access), will inextricably link the daily activities of businesses and ordinary citizens with space capabilities. Currently, the United States has over 200 active commercial, civil, and military satellites on orbit worth in excess of \$100B delivering products Americans depend on everyday.<sup>3</sup> The projected future economic investment is staggering, with over \$500B to be invested in 1000 satellites that will be launched over the next decade.<sup>4</sup> In 1996, for the first time in history, commercial launches exceeded government launches. Worldwide today more than 1,000 companies develop, manufacture, and operate space systems,<sup>5</sup> with many of these companies based in the United States. With each passing day, America becomes more reliant on the connectivity that space resources assure.

The US military's reliance on space will also continue to grow. Key intelligence, surveillance, reconnaissance, strategic and theater level warning, weapon's guidance, navigation, communications, and command and control functions are continually migrating to space.<sup>6</sup> Achieving the vision expounded in *Joint Vision 2010*, which is the ability to be persuasive in peace, decisive in war, and preeminent in any form of conflict,

rests in large measure on the asymmetric advantages that are provided by America's dominance in space capabilities.

Our political and diplomatic instruments of national power would be severely limited if access to space were lost. The loss of commercial and military communications, of access to weather and navigation data, and loss of intelligence, surveillance, and reconnaissance would cripple our ability to monitor, respond, and control international events and shape our global environment.

The tremendous investment America has in space is going to become, if it isn't already, a vital interest in much the same way as our other economic interests around the world. As America's economic health depended on worldwide expansion across land, sea, and air, we used our military power to help protect our economic investments. The adage of "the flag following the goods" will apply equally in space. The United States is the world's most successful space faring nation. But the dependence on space-based capabilities also makes the US vulnerable to attacks upon those capabilities.

During the decade of the 1980's US space capabilities were important to the nation, but by the 1990's they had become integral to American daily life. As the United States enters the next millennium space capabilities will prove vital to our national survival. Space has moved from a convenience to indispensability, and as it has made this transition our need to preserve, protect, and defend our capabilities has increased accordingly. Our national security depends on the ability to safeguard and defend America's interests in space.<sup>7</sup>

## **Why an Area of Responsibility for Space when none for Air, Land, and Sea?**

The objection may be made that the other operational mediums of air, land, and sea are not assigned as AORs, so why should there be one for space? In fact, every operational medium except space is assigned to the existing regional AORs.<sup>8</sup> While many US concerns are global in nature, regional AORs were established to allow adequate span of control over an area in which America has strategic interests. The regional commander is then responsible for planning, preparing, conducting operations, and employing forces to accomplish Presidentially authorized and Unified Command Plan assigned responsibilities and missions within his assigned region.<sup>9</sup> Establishing a realistic span of control for each AOR is crucial since each regional commander has limited resources and expertise to deal with numerous responsibilities.

The distinction raised by the Committee on Roles and Missions, that “sufficient land, air, and sea area be included in each geographic command to allow the commander the means to meet his responsibilities,” is too narrow because it assumes a terrestrial mindset and fails to address the medium of space. The point of contention is not the medium of operation, but that sufficient area should be included in an AOR for effectively conducting required operations with all recognized regional actors. The five current AORs include only the mediums of air, land, and sea since these mediums allow adequate resolution of terrestrial issues. This changes when the issues and potential solutions are no longer tied to the surface of the earth.

The very nature of space and space-based systems (long-duration, predictable orbits, global perspective, worldwide coverage, ability to traverse and support multiple terrestrial AORs, etc.) argues against dividing responsibility for space among the

terrestrial regional commands. Achieving the necessary span of control for space requires a single commander leading an organization encompassing the expertise and resources for dealing with the unique responsibilities inherent to the region. This is the same justification used to establish the five current regional commands. It should be the same criteria used to establish an area of responsibility for the region of space.

### **Changes that Warrant Transitioning Space to Regional Status**

When USSPACECOM was initially established in 1985, America's military space capabilities were still in an early stage of development. Although a few visionaries appreciated the potential of space, widespread awareness of the dynamic advantages it could provide the warfighter would not occur until later. Principal missions for the new command included providing communications and weather information for conventional forces and threat warning for strategic forces and the National Command Authorities. Even though the initial charter for USSPACECOM included the warfighting mission of space control, the existing space capabilities and assigned missions made functional command status for USSPACECOM a logical choice.

The Persian Gulf War made the US military acutely aware of the operational value of space systems. Space-based communications, weather, navigation, surveillance and intelligence offered capabilities unparalleled in earlier conflicts. The Gulf War provided a glimpse of how space control in the next century could be as important as air and sea control had been in this century. But it also highlighted some of the shortfalls of the inherited research and development mindset and strategic focus of USSPACECOM. The primary example of this was the lack of operational space expertise available to regional commanders on their staffs, and the resultant absence of preplanning for space support

for combat operations. Prior to Operation Desert Shield, US Central Command's operations plan did not address how spacepower should be used in Southwest Asia.<sup>10</sup> As a result of this inadequate planning, weather vans, ground antennas, intelligence terminals, and other space-related ground equipment were left off the equipment deployment lists.<sup>11</sup>

Where the military previously had been lagging in its operational understanding and appreciation for exploiting the opportunities space provided, it now began to embrace them.<sup>12</sup> Space was finally recognized as a fourth operating medium that is separate and distinct from air, land, and sea. Space is a region where unique capabilities provide a tremendous force multiplier and the potential for independent force application.<sup>13</sup> To use it effectively, the nation's military forces must understand the many uses of space, have free access to it, and be capable of denying an enemy the operational advantages that are available through the use of space. Conversely, potential enemies also have taken note of the reliance on and the asymmetric advantages provided by space to US forces, and will seek to deny or disrupt the use of it. It is likely that US space capabilities will become a target for enemy attack.

The importance of space for current and future warfighting capabilities for America was highlighted by the 1997 Quadrennial Defense Review (QDR). To retain current US superiority in space, the QDR noted that "we must monitor foreign development and use of space-based assets as well as acquiring capabilities for protecting US systems while preventing the hostile use of space by an adversary."<sup>14</sup>

The National Defense Panel was even stronger in tying future military capabilities to space. Noting that the "US lead in space will not go unchallenged," the panel called for

the coordination of all aspects (civil, commercial, and national security) of space, as the “use of space is a major element of national power.”<sup>15</sup>

The US must develop an ability to control space if we want to maintain our advantages in military operations. We must protect America’s space assets to include the commercial segment and be able to deny our enemies the opportunity to gain military advantages through the utilization of space. Space control and force application will become more important in the future as access to space becomes more available to many countries in the world.

The need to control the region of space and to allow unrestricted access while being able to deny that of an adversary are driving the transition of USSPACECOM from functional to regional command status. Establishing USSPACECOM as a functional command in 1985 was a logical step based upon existing technology. The times have changed, and so have our capabilities and potential in the region of space. USSPACECOM needs to be reorganized to maximize those abilities. Achieving *Joint Vision 2010’s* vision of full spectrum dominance depends on it.

### **Seams Between Adjacent AORs?<sup>16</sup>**

Concern is expressed that establishing a separate AOR for space will create seams, or impediments, to effective operations between adjacent regions and result in force employment and coordination problems. This is exactly the situation that exists by not having space assigned to any current area of responsibility. No specific agency is responsible as the single operational focal point for the region of space. The frustrations experienced during the Gulf War over the lack of a centralized control agency for space communication systems were a telling example. While USSPACECOM was given

responsibility for developing communication architecture for the Persian Gulf area by the Chairman of the Joint Chiefs of Staff, no formal relationship existed between US Space Command and the managers of the several satellite communication systems.<sup>17</sup> Indeed, it required the effective coordination of over sixty agencies during a five-month period to establish the Gulf War communication infrastructure.<sup>18</sup> The operational control of these satellite systems still remains fragmented today among the various space agencies, services, and commands.

The lack of preplanning for space support in the Gulf War was another artificial seam caused by the failure of having the region of space assigned to a responsible commander. Space annexes to operation plans either did not exist or were incomplete prior to the war and had to be developed as the contingency progressed. Through innovation and ingenuity during the six-month buildup of Operation Desert Shield, US forces made spacepower work. But, as noted earlier, a six-month buffer is a luxury the United States may not have in future conflicts.<sup>19</sup>

Operational relationships between regions take time to develop and refine. This does not mean that effective procedures cannot be established. Coordination between multiple AORs did not create an unmanageable problem in the case of conducting air attacks from three separate regions during the Gulf War. Likewise, no great concerns have been expressed about the impact on regional command relationships caused by the Air Force's Global Engagement concept, with its inherent ability to operate through multiple regions. But the lesson from the Gulf War should be heeded and the US military should not wait until a conflict is imminent before establishing combatant command relationships and procedures. These need to be in place before it is time to fight. Designating a

commander as a single operational focal point for a region does not create an operational seam, but instead improves our ability to integrate regional capabilities into the overall force package, and thereby maximizes the combat power of the United States.

## Summary

The unrestricted use of space has become a vital strategic interest of the United States. Space-based systems impact areas as diverse as communications, entertainment, weather reporting, and finance and business transactions that are integral to daily life in America. The national government relies on crucial space-derived intelligence, surveillance, and reconnaissance to monitor and respond to international events and shape our global environment. The template for the future of the American military, *Joint Vision 2010*, with its tenets of dominant maneuver, precision engagement, full-dimensional protection, and focused logistics will be impossible to achieve without robust space capabilities and their significant force multiplying effects.

To accomplish this, America must have unrestricted access to the region of space and the ability to deny access to an enemy. This requires a regional combatant command with the requisite resources, expertise, and span of control to deal effectively with the challenges of the region. Creating an AOR for the region of space will not exacerbate operational seams with the terrestrial commands. Conversely, they will be mitigated by finally having the region of space assigned to a responsible commander.

It is a virtual law of history that a relative military advantage enjoyed by one nation will soon be challenged by another. As the world's foremost spacefaring nation, America must prepare to face those challenges. Establishing space as the sixth AOR, with a dedicated commander assigned as the single focal point for the region that is responsible

for planning, preparing and conducting space operations, is a logical first step toward meeting those challenges.

### Notes

<sup>1</sup> “Unified Command Plan (S/NF),” Chairman of the Joint Chiefs of Staff, Washington DC, 1995, Portion extracted is Unclassified

<sup>2</sup> “Report of the Commission on Roles and Missions”, Department of Defense, Washington DC, 1995

<sup>3</sup> Speech by General Howell M. Estes, III, USCINCSpace, presented to Air Force Association Annual Symposium, Los Angeles, California, 18 October 1996

<sup>4</sup> Phillip A. Odeen, et al, “Transforming Defense: National Security in the 21<sup>st</sup> Century,” Report of the National Defense Panel, Arlington Virginia, December 1997, 38

<sup>5</sup> Ibid., 38

<sup>6</sup> US Air Force Long Range Plans Division. “Global Engagement: A Vision for the 21<sup>st</sup> Century Air Force.” Briefing Script. 12 Nov 1996

<sup>7</sup> Estes, *ibid.*

<sup>8</sup> As noted by the 1995 Report of the Commission on Roles and Missions, “Sufficient air, land, and sea area should be included in each geographic command to allow the regional commander the means to meet his responsibilities.” It is interesting to note the lack of consideration for the region of space above the assigned terrestrial AOR.

<sup>9</sup> “Unified Command Plan (S/NF),” Chairman of the Joint Chiefs of Staff, Washington DC, 1995, Portion extracted is Unclassified

<sup>10</sup> USCENTCOM OPLAN 1002-90. Historical Research Agency, Maxwell AFB Alabama

<sup>11</sup> Lt Gen Thomas S. Moorman Jr., USAF, Remarks to the 8<sup>th</sup> National Space Symposium, Colorado Springs, Colorado, 2 April 1992, 1

<sup>12</sup> General Michael P. C. Carnes, USAF, “A Commentary,” Address to the National Security Industrial Association Symposium, 10 November 1994. General Carnes, then Vice Chief of Staff of the Air Force noted, “At least two conditions have brought about this situation. First, although space has been the new frontier, it has been developed and shaped for some three plus decades by functional specialties, not operators. For far too long, military space has been the...domain of national level intelligence, reconnaissance, surveillance, and warning. These are functional areas well known for secrecy and compartmentation, limited oversight, generous funding, restricted access, and narrow application. That must change and is changing. Second, the conditions that allowed this narrow development of space utilization also created...a hard shell that has prevailed beyond its time, even beyond the end of the Cold War. It took a warfighting event (Persian Gulf War) to crack the shell and force open the door. Warfighters, suddenly in charge, were often amazed at what they discovered behind the door and at what was available for improved battlefield situational awareness, for innovative operational maneuver inside the enemy’s decision loop, and for vastly improved targeting and damage assessment tools. In the words of an old saying: once they’ve been to the big city, it’s tough to get them back on the farm. The operator is not going back.”

## Notes

<sup>13</sup> General Howell M. Estes, III, USAF, "Space and Joint Space Doctrine," *Joint Force Quarterly*, Winter 1996-97, 61

<sup>14</sup> "Report Of the Quadrennial Defense Review," Pentagon, Washington DC, May 1997, III-14. "The United States must retain superiority in space. Global intelligence collection, navigation support, meteorological forecasting, and communications rely on space-based assets. To maintain our current advantage in space even as more users develop capabilities and access, we must focus sufficient intelligence efforts on monitoring foreign use of space-based assets as well as develop the capabilities required to protect our systems and prevent hostile use of space by an adversary."

<sup>15</sup> Odeen, *ibid.*, Executive Summary, iii. The panel commented on the implications of losing our national leadership in space capabilities (38-39): "Space power is an integral part of the revolution in military affairs and a key asset in achieving military advantage in information operations. For the military, space is the information battle's high ground. The United States cannot afford to lose the edge it now holds in military-related space operations."

Greater accessibility to space by our competitors will strongly influence the struggle for advantage in military operations. For example, an adversary could use commercial or third party national remote-sensing and communications satellites, along with space-based navigation data, to help identify or target forward-deployed U.S. forces and fixed facilities such as ports, airfields, and logistics centers. Therefore, we must take steps now to ensure we have the ability to deny our enemies the use of space."

<sup>16</sup> For this discussion a "seam" will be defined as an artificial impediment or hindrance to effective coordination, employment, operation, or mission accomplishment.

<sup>17</sup> US Space Command Operations Desert Shield and Desert Storm Assessment (S/NF), Peterson AFB, CO: USSPACECOM, 31 January 1992, 67. Portion extracted is Unclassified.

<sup>18</sup> J.R. Wilson, "A Commanding View," *International Defense Review*, January 1995, 24

<sup>19</sup> Michael M. Garrell, "There are No Space Wars, How Do CINCs Fight Using Space Forces?," Newport RI, Naval War College, 17 June 1994, 17. Garrell argues that it is clear from the post war analysis that the successful use of spacepower was due largely to innovation, creativity, and ad hoc procedures, not operational thinking or planning.

## **Chapter 4**

### **The Case Against Space as a Separate Area Of Responsibility**

The argument against establishing a separate Area of Responsibility for the region of space is less developed in the literature. The Air Staff has been the chief opponent of AOR designation, with the other service space contingents taking a “wait and see” approach to the ongoing debate between USSPACECOM and the Air Force. The opposing argument has been presented primarily in a series of briefings and position papers that were prepared for senior Air Force leadership. While not as publicly vocal as the supporting element, opponents raise strong and persuasive objections to geographic AOR status. The concern with creating artificial seams between terrestrial and space forces, the failure to address the real nature of problems affecting USSPACECOM and the effective employment of space power, and the lack of a credible and realistic threat to current US space operations are all cited. These arguments, combined with US concern over potential international objections to the implied weaponization of space inherent in a space AOR, constitute a difficult set of challenges to be overcome.

#### **Seams of Various Types are still a Concern**

The idea of seams between adjacent regions is not new or limited to the opposing side in the separate AOR discourse. Seams can take various forms, from the lack of coordination or established procedures for cross regional boundary operations, to “stove-

“piping” due to excessive focus on a single mission, to concerns with preserving missions and force structure at the expense of effective operations. Some, or all, are involved in the sixth AOR issue.

As discussed in Section 3, the argument is presented that operational seams will not be an impediment to establishing a separate AOR for space. Cross boundary operations were effectively coordinated during the Gulf War, despite operating from three separate AORs. The same result can be accomplished with the region of space and adjacent terrestrial AORs as long as sufficient lead-time is allowed for developing effective procedures. However, the air staff position is that the Gulf War employment argument is a false and misleading example.<sup>1</sup> Airpower was decisive in the Gulf War not because effective relationships were established between multiple AORs, but because a Joint Forces Air Component Commander (JFACC) was designated to control all air assets regardless of regional command affiliation. The JFACC melded these assets into a coherent campaign plan and executed the plan through means of an Air Tasking Order that applied to all units under his operational control.

The issue of who should control operational space responsibilities, whether by a JFACC or some other entity, and what should be handled by USSPACECOM, has not been fully addressed. These variables may change as force structure develops, but are not particularly driven by AOR status. The details of if, and when, specific force structure elements are reassigned (“chopped”) to regional commanders are clearly Unified Command Plan issues which will be resolved as they come up, independently of AOR status.<sup>2</sup> Additionally, the Air Staff takes exception to the USSPACECOM assertion that the Air Force has no problem with long-range airpower crossing regional boundaries.

There are problems and inconsistencies created by the development of long-range capabilities and deep battle concepts by all the Services.<sup>3</sup> Like the space AOR issue, these are challenges that need to be resolved.

USSPACECOM asserts that designating space as an AOR, and thus strengthening USCINCSpace's single-point-of-contact credentials, would smooth space operations among the various agencies and reduce the likelihood that operational seams would continue to grow along organizational boundaries. This may be true for military (DoD) agencies. However, the Unified Command Plan applies to military operations only and its power to influence the behavior of non-DoD agencies is highly questionable. Agencies within the defense establishment already recognize USSPACECOM as the lead agent for military space. Agencies external to the DoD would probably take little notice of a change in relations with USSPACECOM regardless of AOR status.

The seam the Air Force probably fears the most is at an institutional level. This is the possibility of a widening gap between space and air operations. Air Force doctrine strongly promotes integrating air and space capabilities. There is concern of undermining this integration if the designation of a separate AOR promotes the "uniqueness" of space.<sup>4</sup> USSPACECOM might focus on the glamour missions of space control and force application at the expense of fully integrating force enhancement and support capabilities in the space and air force.<sup>5</sup> Additionally, if the space AOR is made too attractive, other Services might move to gain influence in space mission areas. This could jeopardize USCINCSpace as an Air Force 4-star position. Even worse, it could lead to a future non-Air Force USCINCSpace bringing a surface warfighter's perspective of non-

permissive (uncrossable) AOR boundaries to space operations, thus creating an enormously counterproductive operational seam between air and space.<sup>6</sup>

### **Existing UCP is not the Proper Forum for Change**

Many of the goals that USSPACECOM seeks to accomplish as the result of geographic AOR designation can be accomplished now without a change from functional to regional command status. Contingency planning, representing military space in external forums, and doctrine and strategy development can proceed with USCINCSpace and CJCS support. If the proper emphasis is placed on these areas, they will develop regardless of the regional status of space.

Additionally, many of the ten responsibilities granted regional commanders under the current Unified Command Plan are either not applicable to or have little value to USCINCSpace. Arguably, US forces probably will not be conducting non-combatant evacuation operations or peace or humanitarian relief operations within the region of space anytime soon. Other regional command responsibilities under the Unified Command Plan include providing US military representation within the region to international and US national agencies, serving as the single point of contact responsible for the area, and providing military assessments of security assistance within the region. Additional responsibilities include ensuring coordination of regional security assistance matters and commanding, supervising, and supporting security assistance organizations in matters not functions or responsibilities of Chiefs of US Diplomatic Missions. The regional commander also performs advisory, planning, and implementing responsibilities relating to security assistance matters within the AOR. The regional commander would assume combatant command in the event of war, or an emergency that prevents control

through normal channels, of security assistance organizations within the AOR.<sup>7</sup> Finally, the commander provides a single point of contact within the AOR for countering the proliferation of weapons of mass destruction.<sup>8</sup>

A quick review of the above responsibilities shows little applicability to USCINCSpace. Areas of responsibility are established to manage political responsibilities, provide the necessary span of control, and promote operational efficiency. If these areas are not problems, an AOR is not required and establishing one will have little added value. The US military needs to ensure that the perspectives of space warfighters are represented and accounted for during contingency planning and when dealing with external agencies and foreign nations. However, giving USCINCSpace parallel responsibilities with terrestrial commanders could lead to potential conflicts. Since decision-making authority for the region of space resides exclusively with terrestrial political entities, the terrestrial theater commanders must remain the lead military representatives.<sup>9</sup> Other methods must be found to ensure they take on and coordinate space issues properly, but a separate AOR is not a cure for the problem.

Doctrine formulation is another area that USSPACECOM hopes to invigorate by separate AOR status.<sup>10</sup> The vast majority of the documented space lessons gleaned from the Gulf War concerned either a lack of doctrine or a lack of space literacy or experience. While the space community pursues ideas to normalize spacepower operations, doctrine is an afterthought—“dull, boring, and useless,” or “important but not read by warriors.”<sup>11</sup> The Air Force and USSPACECOM are both guilty on this issue and are working to correct the lack of useful space doctrine for the warfighter. USCINCSpace asserts that

establishment of a space AOR will stimulate and facilitate development of doctrine, strategy, tactics, and procedures. However, as General H. H. “Hap” Arnold noted, “We must keep our doctrine ahead of our equipment and our vision far into the future.”<sup>12</sup> Doctrine should drive organizational development, not the other way around. We would be putting “the cart in front of the horse” by designating an AOR for space then developing the doctrine to justify its existence and utilization.

The overriding concern is that we are trying to fit a space AOR into a Unified Command Plan that has little applicability as currently established. The Air Force has several unresolved concerns about the larger implications for roles and missions among the unified commands and the military services, the evolution of military space power being but one of them.<sup>13</sup> Designating space as an area of responsibility within an existing model that may not be appropriate for evolving space missions and organizations is not the correct answer. We need to reexamine the Unified Command Plan model at a fundamental level and stop force-fitting evolving organizations and missions into the established regional and functional structure.

### **“Areas of Responsibility are about Warfighting not Physics”<sup>14</sup>**

The 1996 National Space Policy of the Clinton Administration directs the nation to “maintain its pre-eminent position as the world’s number one space power.”<sup>15</sup> To support this policy, the Unified Command Plan tasks USSPACECOM with the missions of space control and force application. However, the US has no space-based offensive capabilities for conducting these assigned warfighting missions. Since the election of 1992, the current Administration has consistently opposed anti-satellite weapon development and

testing and is not likely to change this position without evidence of a realistic and credible threat to US space capabilities.<sup>16</sup>

The President himself recently asserted the lack of a current threat to US satellite operations. In a November 18, 1997 letter to Senator Tom Harkin (D-Iowa), President Clinton defended the Pentagon's October test of a ground-based laser against an aging Air Force satellite by stressing the exercise was not an anti-satellite test, but rather one designed to assess the vulnerability of US satellites. Noting the reliance on space based assets in support of various military missions, the President noted, "We must have the ability to prevent adversaries from using their space-based assets against our forces in wartime and can do this through a variety of methods, including destroying ground terminals or disrupting satellite links." According to the President, however, these other methods of denying adversaries the use of space are sufficient to make the deployment of an ASAT system unnecessary. "I do not believe any threat yet justifies the near-term deployment of an operational ASAT capability," he wrote.<sup>17</sup>

The national intelligence community further supports the notion that there is little to be feared near term from or through space, at least as far as hostile ballistic missiles are concerned. The Central Intelligence Agency (CIA) recently reaffirmed its 1995 analysis that potentially hostile nations are at least 15 years away from developing ballistic missiles capable of threatening the continental United States. Based on its ongoing analysis of missile related activities over the past year, the CIA continues to stand by the judgments and conclusions contained in National Intelligence Estimate 95-19. The agency states, "We remain confident in the National Intelligence Estimate's key judgments that any deployment by such countries of long-range ballistic missiles capable

of targeting the 48 contiguous states will not be within the next 15 years and that North Korea might develop a missile capable of striking Hawaii and Alaska sometime in the next 15 years.”<sup>18</sup>

Without a credible threat to US capabilities, the Unified Command Plan warfighting missions of space control and force application will be slow to develop. Space support to the terrestrial warfighter will remain the dominant mission for space forces. In this purely supporting role, there is little value added by establishing a separate AOR for the region of space, at least for the near future.

While the missions of space control and force application are likely to drive the requirement for a space AOR as they become major elements of our combat force structure in the future, establishing one today is unlikely to accelerate the development of these capabilities unless there is a change in the administration or threat.

### **International and Domestic Concerns**

Although of low intensity at this time, both the State Department and National Security Council have voiced concerns of foreign objections if the US designates space as the sixth AOR.<sup>19</sup> Russian reaction to a recent US space laser test is a possible harbinger of things to come. In a letter to President Clinton, Russian President Boris Yeltsin voiced concern for the threat posed to his nation’s satellites if the US develops anti-satellite capabilities. President Clinton attempted to assuage Russian concerns by explaining that the test engagement was “a defensive experiment and not an ASAT test.” It was reported that President Yeltsin also raised the subject of negotiations to ban anti-satellite weapons. While the White House would not confirm this, a spokesman signaled that the Clinton Administration would be open to this possibility.<sup>20</sup>

Domestic concerns are also an issue. The Air Force fears negative public and congressional reaction to the space AOR proposal, and being branded as “space warmongers” in the ensuing public debate.<sup>21</sup> The current administration opposes the development and fielding of space weapons. The administration’s interpretation of the Anti-Ballistic Missile Treaty strictly limits the type of systems that the US can develop and test,<sup>22</sup> and its long held position against ASAT weapon development has not changed.<sup>23</sup> Additionally, the US has a history of limiting itself in the area of space combat systems for philosophical reasons.<sup>24</sup> It is inevitable, however, that public, congressional, administration, and international concerns will rise to the forefront in any serious debate about establishing space as an AOR. These will have to be dealt with carefully if the proposal has any hope of acceptance.

### **Prudent Moves**

The Air Force is concerned that designating space as an AOR prematurely could focus excessive attention on emerging space combat missions at the expense of near- and mid-term force enhancement capabilities.<sup>25</sup> To effectively execute its stewardship responsibilities as the lead Service for space, the Air Force must continue to focus on the integration of critical space force enhancement capabilities with air, land, and sea based terrestrial warfighters. Failure to do so could risk the quality of space integration with the other services as well as the credibility of the Air Force.

An additional concern is the developing linkage between information operations and space capabilities. The recent National Defense Panel report stressed the need for the US to maintain information superiority while developing effective defensive and offensive information capabilities.<sup>26</sup> The panel also recommended that USSPACECOM “expand

the use of space and information to implement a vision of global awareness, integrated space operations, and information superiority.”<sup>27</sup>

Space doctrine is closely bound with information operations doctrine, which is even more immature. The next few years will see great advances in information operations strategy and doctrine. While there is not a strong linkage between this issue and the designation of space as an area of responsibility, there is reason to believe that delaying action on the question of space as a separate AOR may allow clarification of some of the existing gray areas.<sup>28</sup> Depending on how technology and force structure develops, information operations might constitute some of our earliest space combat capabilities. Locking in organizational solutions for space without fully analyzing how they impact emerging information operations concepts might not be prudent.

## **Summary**

USCINCSpace has raised many issues that require careful analysis, including improved centralized control of military space operations and operational planning under USSPACECOM, improved space warfighter representation at key national and international forums, and better management of space-related security assistance activities. But these issues can be resolved independently of space AOR status.

The vast majority of responsibilities granted to regional commanders through the Unified Command Plan are not applicable or relevant to USSPACECOM. “Force fitting” USSPACECOM to the currently existing regional combatant command template is not optimal. The Unified Command Plan needs an extensive review in light of modern concepts of global engagement and deep battle.

Finally, US and international opinion regarding establishing space as a formal warfighting arena will make AOR designation very challenging without a change in the administration and/or a realistic and credible threat.

### Notes

<sup>1</sup> “Space as an AOR: Air Staff Perspectives,” briefing prepared by Air Staff, Pentagon, Washington D.C., August 1997, 10

<sup>2</sup> Ibid., 13

<sup>3</sup> Ibid., 10

<sup>4</sup> Ibid., 15

<sup>5</sup> Ibid., 18

<sup>6</sup> “Background Paper on USCINCSpace Initiative to Designate Space as 6<sup>th</sup> AOR”, Air Staff/XOCD, Pentagon, Washington, D.C., 7 October 1997, 2

<sup>7</sup> Security assistance organizations are defined by the DoD Dictionary of Military and Associated Terms (Joint Pub 1-02, US Government Press, Washington DC, 1994) as, “All Department of Defense elements located in a foreign country with assigned responsibilities for carrying out security assistance management functions. It includes military assistance advisory groups, military missions and groups, offices of defense and military cooperation, liaison groups, and defense attaché personnel designated to perform security assistance functions.” From the terrestrial AOR focus of this definition, it has little application to current space operations.

<sup>8</sup> “Position Paper on Compromise Positions; USCINCSpace Initiative to Designate Space as 6<sup>th</sup> AOR”, Air Staff/XOCD, Pentagon, Washington, D.C., 7 August 1997, 1-3

<sup>9</sup> Ibid., 1

<sup>10</sup> Doctrine is defined by the DoD Dictionary of Military and Associated Terms (Joint Pub 1-02, US Government Press, Washington DC, 1994) as, “Those fundamental principles by which the military forces or elements guide their actions in support of national objectives. It is authoritative but requires judgement in application.”

<sup>11</sup> Colonel Edward C. Mann III, “Thunder and Lightning; Desert Storm and the Airpower Debates,” Air University Press, Maxwell AFB, AL, 1995, 164

<sup>12</sup> AFM 1-1, Basic Doctrine of the United States Air Force 1984, 4-7

<sup>13</sup> “Position Paper on Compromise Positions; USCINCSpace Initiative to Designate Space as 6<sup>th</sup> AOR”, Air Staff/XOCD, Pentagon, Washington, D.C., 7 August 1997, 3

<sup>14</sup> Quoted by a senior Air Force Officer while addressing the Air War College under the provision of non-attribution, October 1997. Quote was in reference to doctrinal developments in the USAF and the recent push for a separate AOR for space.

<sup>15</sup> Gen Howell M. Estes IV, CINC, USSPACECOM, address to the Air Force Association Annual Symposium, Los Angeles, CA, 18 October 1996

<sup>16</sup> “ASAT Proponents Fail to Reverse White House Policy,” Space News, September 19-25, 1994, 7

<sup>17</sup> “Clinton Letter: Threats Don’t Justify Developing Anti-Satellite Weapons,” Inside Missile Defense, 3 December 1997, 10-11

## Notes

<sup>18</sup> “CIA Stands by Judgement that Missile Threat is 15 Years Off”, Defense Daily, 5 December 1997, 11-12

<sup>19</sup> “Memo for Record: Unified Command Plan Meeting”, Air Staff/XOCD, Pentagon, Washington D.C., 20 Oct 1997, 3

<sup>20</sup> “Russia Concerned About US Space Laser Test,” Defense Daily, 17 October 1997.

<sup>21</sup> “Space as an AOR: Air Staff Perspectives,” briefing prepared by Air Staff, Pentagon, Washington D.C., August 1997, 8

<sup>22</sup> Michael R. Mantz, Lt Col, USAF, “The New Sword—A Theory of Space Combat Power,” Air University Press, Maxwell AFB, Alabama, 1995, 60

<sup>23</sup> “ASAT Proponents Fail to Reverse White House Policy,” Space News, September 19-25, 1994, 7

<sup>24</sup> Mantz, *ibid.*, 60

<sup>25</sup> “Background Paper on USCINCSpace Initiative to Designate Space as 6<sup>th</sup> AOR”, Air Staff/XOCD, Pentagon, Washington, D.C., 7 October 1997, 2

<sup>26</sup> Phillip A. Odeen, et al, “Transforming Defense: National Security in the 21<sup>st</sup> Century,” Report of the National Defense Panel, Arlington Virginia, December 1997, 38

<sup>27</sup> *Ibid.*, 72

<sup>28</sup> “Space as an AOR: Air Staff Perspectives,” briefing prepared by Air Staff, Pentagon, Washington D.C., August 1997, 14

## Chapter 5

### Conclusions, and Recommendations

*Victory smiles upon those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after those changes occur.*

Air Marshall Guillo Douhet  
Command of the Air

#### Conclusions

This paper was written during the 1997 review cycle for the Unified Command Plan. From the beginning, the most contentious issue has been the proposal by USSPACECOM to designate space as the sixth geographic AOR, transforming the command from functional to regional combatant command status. The soon to be released UCP revision will not make space a distinct AOR.<sup>1</sup> While the revised plan does not grant USCINCSpace the status of a regional commander, it contains language that recognizes some of the issues over which USSPACECOM sought change. The revision will “obliquely” refer to space as an area in which military operations may take place, as well as contain new language giving USSPACECOM added flexibility to plan for space control missions in the future, including protection of space assets. Unfortunately, this is at best a temporary solution to a long-term problem.

As the recent National Defense Panel pointed out, the “unrestricted use of space has become a major strategic interest of the United States.”<sup>2</sup> There is no disagreement on either side of the space Area of Responsibility argument that the US has strategic, perhaps vital interests in the region of space. Our dependence on space and space-based capabilities has increased dramatically in the few decades since our first ventures into the region. The region of space will assume even greater importance as new initiatives and technologies come to the fore. Increasingly, USSPACECOM will not only support the warfighter from space but will operate from space. The asymmetric combat advantage the US enjoys due to space-based assets and capabilities has not gone unnoticed and it will not go unchallenged. Military competitors will seek ways to reduce our current advantage.

The lack of a near-term threat to our current space dominance does not mean that one will not exist in the future. The US military would be remiss in its responsibility of ensuring the nation’s security if it failed to consider and plan for dealing with this evolving threat. However, establishing a space AOR will not necessarily result in USSPACECOM becoming overly focussed with the “glamour” missions of offensive counter-space or force application to the detriment of being a good steward for space to all the Services. Our military emphasis in space will be placed where the threat, available budget, senior military leadership, and National Command Authorities dictate. Force enhancement and support against a terrestrial based threat will continue to be the dominant space mission.

The National Defense Panel study focused on the long-term issues and threats facing US defense and national security. One of their most disturbing findings is that the current

course the US military is following is “unlikely to produce the military capabilities necessary to meet the range of challenges foreseen in 2010-2020.”<sup>3</sup> Currently existing and planned structure, doctrine, and strategy will be inadequate to meet the challenges of the future.<sup>4</sup> Space operations are a key area that the National Defense Panel felt the US must possess the ability to respond effectively to in order to meet the challenges of the future. We must take steps now to ensure we have the ability to protect our capabilities in space while denying our enemies the advantages gained by access to space.

The region of space is crucial to modern US warfighting and critical to achieving the vision for the future expounded in JV 2010. Whether formally acknowledged or not, *space already is an area of responsibility* where strategic, and some day vital US interests are at stake. USSPACECOM must be given responsibility as the single military focal point for the region of space, responsible for planning, preparing, and conducting space operations in an assigned AOR. Both sides in the argument agree that force fitting a space AOR into the current Unified Command Plan template is not optimum. As noted earlier, the existing plan fails to adequately address several contentious issues including deep battle concepts, long-range strike capabilities, and space force evolution. Additionally, many of the current responsibilities for terrestrial regional commanders are of limited utility or would even create conflicts for a space regional commander. This does not mean that it is wrong to establish a space AOR. To the contrary, it points out the need for a thorough review and revision of the Unified Command Plan, updating it to meet the challenges of today and an uncertain future.

Operational seams, or impediments to effective operations are an area of concern for both sides of the AOR argument. Establishing a separate AOR for space, with an

assigned commander as the single focal point for the region responsible for planning, preparing, and conducting space operations will eliminate seams rather than create them. The current lack of a credible threat to US space capabilities provides a period of breathing room to develop, coordinate, and refine the vast majority of regional coordination issues. The more contentious issue of how to best employ space forces in support of terrestrial operations, and some day terrestrial forces in support of space operations, will be worked out as doctrine develops. We must remember to heed the lessons of the Gulf War and not wait until a conflict is imminent before getting our space architecture and procedures in order.

Domestic and international concerns will probably prove the biggest challenge to designating space as an AOR and developing the capabilities necessary to make the assigned missions of space control and force application a reality. As discussed earlier, our superiority in space will not go unchallenged. Just as man fought on land, the sea, and in the air as strategic interests migrated through those mediums, combat will eventually take place in space. Americans may not initiate hostilities in space but many countries don't share our values, and we must be ready if and when the gauntlet is thrown our way. Within the limits established by our government, we must aggressively pursue our military future in space.

A cardinal military axiom is to "take the high ground"—and space is the ultimate high ground. We must be prepared organizationally to extract the maximum possible benefit from the vast potential of space. Recognition of space as a distinct AOR is the logical next step in this evolving process.

## Recommendations

- 1) The Department of Defense should conduct a thorough review of the current Unified Command Plan for applicability, considering global power projection and deep battle concepts, global functional responsibilities, and blurring of traditional supported/supporting roles for various combatant commands.
- 2) Designate the region of space as an Area of Responsibility during the 1999 UCP review cycle. This designation can be within the framework of a revised UCP, or if revision is not complete, the existing framework, as long as appropriate language is inserted to clarify responsibilities to ensure there is no conflict with terrestrial commanders.
- 3) USCINCSpace should continue to encourage and aggressively develop doctrine, strategy, operational concepts, equipment, and system acquisition for that time when the transition is made from functional to regional combatant command status.
- 4) The Department of Defense should immediately grant USCINCSpace single point of contact responsibility for all military space matters.

General Howell Estes III, USCINCSpace, best summed up the challenge to American warriors of all services regarding the region of space when he said, “The United States has enjoyed relative freedom in space and has not yet engaged an enemy that can duplicate or deny our space capabilities. *We must ensure this situation does not change in the future.*”<sup>5</sup>

## Notes

<sup>1</sup> “Command Plan Revision Will Not Declare Space a CINC’s Regional Area,” *Inside the Pentagon*, 27 November 1997

<sup>2</sup> Phillip A. Odeen, et al, “Transforming Defense: National Security in the 21<sup>st</sup> Century,” Report of the National Defense Panel, Arlington Virginia, December 1997, 38

<sup>3</sup> *Ibid.*, 21

<sup>4</sup> *Ibid.*, 21

<sup>5</sup> Estes, General Howell M. III, “Space and Joint Space Doctrine,” *Joint Force Quarterly*, Winter 1996-97, 63

## *Glossary*

AFDD	Air Force Doctrine Document
AFSPACECOM	Air Force Space Command
AOR	Area of Responsibility
ASAT	Anti-Satellite
CENTCOM	Central Command
CIA	Central Intelligence Agency
CINC	Commander-in-Chief
CJCS	Chairman of the Joint Chiefs of Staff
COCOM	Combatant Command
CORM	Committee on Roles and Missions
DoD	Department of Defense
DSP	Defense Satellite Program
GPS	Global Positioning System
ICBM	Intercontinental Ballistic Missile
IO	Information Operations
JFACC	Joint Forces Air Component Commander
NORAD	North American Aerospace Defense Command
OPLAN	Operations Plan
QDR	Quadrennial Defense Review
SST	Space Support Team
SWC	Space Warfare Center
UCP	Unified Command Plan
USCINCSPACE	CINC, US Space Command
USSPACECOM	US Space Command

**Joint Force Air Component Commander (JFACC).** The joint force air component commander derives authority from the joint force commander who has the operational authority to exercise operational control, assign missions, direct coordination among subordinate commanders, redirect and organize forces to ensure unity of effort in the accomplishment of the overall mission. The JFACC's responsibilities include, but are not limited to, planning, coordination, allocation, and tasking based on the joint force commander's apportionment decision. The JFACC will recommend to the joint force commander apportionment of air sorties to various missions and geographic areas.

**space control operations.** Operations that provide freedom of action in space for friendly forces while, when directed, denying it to an enemy, and include the broad aspects of protection of US and US allied space systems and negation of enemy space systems. Space control operations encompass all elements of the space defense mission.

## *Bibliography*

- “ASAT Proponents Fail to Reverse White House Policy,” *Space News*, September 19-25, 1994, 7.
- Background Paper on USCINCSpace Initiative to Designate Space as 6<sup>th</sup> AOR*, AF/XOCD, Pentagon, Washington, D.C., 7 October 1997
- Basic Doctrine of the United States Air Force*, AFM 1-1, 1984; 4-7
- Bruger, Lieutenant Colonel Steven J. “Not Ready for the First War—What About the Second?,” *Naval War College Review*, Winter 1995, Vol. XLVIII, No. 1, 76.
- Canan, James W. “Space Gets Down to Earth,” *Air Force Magazine*, August 1990, 33.
- Canan, James W. “Space Support for the Shooting Wars,” *Air Force Magazine*, April 1993, 32-33.
- Carnes, General Michael P. C. *A Commentary*, Address to the National Security Industrial Association Symposium, 10 November 1994.
- “CIA Stands by Judgement that Missile Threat is 15 Years Off”, *Defense Daily*, 5 December 1997, 11-12.
- “Clinton Letter: Threats Don’t Justify Developing Anti-Satellite Weapons,” *Inside Missile Defense*, 3 December 1997
- Cohen, William S. *Report on the Quadrennial Defense Review*, Washington, DC, May 1997
- “Command Plan Revision Will Not Declare Space a CINC’s Regional Area,” *Inside the Pentagon*, 27 November 1997
- Conduct of the Persian Gulf War, Final Report to Congress*, U.S. Department of Defense, Washington DC, April 1992, K-40
- Covault, Craig. “Desert Storm Reinforces Military Space Direction,” *Aviation Week & Space Technology*, 8 April 1991, 42
- Daso, Major Dik. “USAF Origins of Airpower; Hap Arnold’s Command Years and Aviation Technology, 1936-1945,” *Airpower Journal* Vol. XI, No. 3, Fall 1997, Airpower Research Institute, Maxwell AFB, AL
- Department of Defense Space Policy*, Department of Defense, Washington, D.C., Government Printing Office, 10 March 1987
- Doctrine for Joint Operations*, Joint Publication 3-0, Office of the Chairman of the Joint Chiefs of Staff, Washington, DC, 1 February 1995
- Dougherty, Vice Admiral William A. “Storm from Space,” *Proceedings*, U.S. Naval Institute, August 1992, 51.
- Dutton, Lyn et al. “Military Space,” *Brasey’s Air Power: Aircraft, Weapons Systems and Technology Series, Vol. 10*, Brassey’s (UK), 1990
- Estes, General Howell M. III, interview with *Aviation Week and Space Technology Magazine*, 6 August 1997

Estes, General Howell M. III. "Space and Joint Space Doctrine, *Joint Force Quarterly*, Winter 1996-97, 61.

Estes, General Howell M. III. Speech presented to Air Force Association Annual Symposium, Los Angeles, California, 18 October 1996

Famiglietti, Leonard. "Benign Space Concept Ends with Creation of SPACECOM", *Air Force Times*, 12 July 1982

Garrell, Michael M. *There are No Space Wars, How Do CINCs Fight Using Space Forces?* Newport RI, Naval War College, 17 June 1994, 17

*Global Engagement: A Vision for the 21<sup>st</sup> Century Air Force.*" Briefing Script, US Air Force Long Range Plans Division, 12 Nov 1996

Gorn, Dr. Michael H. *Prophecy Fulfilled: "Toward New Horizons" and Its Legacy*, Air Force History and Museums Program, 1994

Henry, Lieutenant General Richard C. "The Role of the Air Force in Space," an unclassified plenary address presented at the Fifth Air University Airpower Symposium, *Proceedings of the Fifth Air University Airpower Symposium, 23-25 February 1981*, ed. John F.H. Schenk (Maxwell AFB, AL: Airpower Research Institute, 1981), (SECRET—Information extracted is unclassified.)

*The History of the Unified Command Plan 1946-1993*, Joint History Office, Office of the Chairman of the Joint Chiefs of Staff, Washington, DC, February 1995

*Joint Doctrine; Tactics, Techniques, and Procedures (TTP) For Space Operations*, Joint Chiefs of Staff (JCS), Washington DC: JCS, 15 April 1992, Final Draft

Kearney, Thomas A. and Cohen, Elliot A. *Gulf War Air Power Summary Report*, Washington D.C., Government Printing Office, 1993

Lupton, Lt Col David E. "On Space Warfare," *Air University Press*, Maxwell AFB, AL, Jun 1988

*Memorandum for Record: Unified Command Plan Meeting*, AF/XOCD, Pentagon, Washington D.C., 20 Oct 1997

Mann, Colonel Edward C. III, "Thunder and Lightning; Desert Storm and the Airpower Debates," *Air University Press*, Maxwell AFB, AL, 1995, 164.

Mantz, Lieutenant Colonel Michael R. "The New Sword—A Theory of Space Combat Power," *Air University Press*, Maxwell AFB, Alabama, 1995, 60.

McPeak, General Merrill A. Address during the SPACE TALK '94 Briefing, 16 September 1994

*Military Space Doctrine*, AFM 1-6 15 October 1982

Moorman, General Thomas S. Jr., "Space: A New Strategic Frontier," *Airpower Journal*, Spring 1992, 19

Moorman, Lieutenant General Thomas S. Jr. Remarks to the 8<sup>th</sup> National Space Symposium, Colorado Springs, Colorado, 2 April 1992

Murray Green Collection, Library of Congress, Washington, D.C.

Odeen, Phillip A., et al. "Transforming Defense: National Security in the 21<sup>st</sup> Century," *Report of the National Defense Panel*, Arlington Virginia, December 1997

*Position Paper on Compromise Positions; USCINCSpace Initiative to Designate Space as 6<sup>th</sup> AOR*, AF/XOCD, Pentagon, Washington, D.C., 7 August 1997

*Report of the Commission on Roles and Missions*, Department of Defense, Washington DC, 1995

"Russia Concerned About US Space Laser Test," *Defense Daily*, 17 October 1997.

Shalikashvili, General John M. *Joint Vision 2010*, Washington, DC, 1997  
*Space as an AOR: Air Staff Perspectives*, Briefing prepared by Air Staff, Pentagon, Washington D.C., June 1997  
*Unified Command Plan (S/NF)*, Chairman of the Joint Chiefs of Staff, Washington DC, 1995  
*US Space Command Operations Desert Shield and Desert Storm Assessment (S/NF)*, Peterson AFB, CO: USSPACECOM, 31 January 1992  
*USCENTCOM OPLAN 1002-90*, Historical Research Agency, Maxwell AFB AL.  
Widnall, Shelia E. and Fogelman, General Ronald R. *Global Engagement: A Vision for the 21<sup>st</sup> Century Air Force*,” Department of the Air Force, Washington DC, 1997  
Wilson, James R. “A Commanding View,” *International Defense Review*, January 1995, 24.

DISTRIBUTION A:

Approved for public release; distribution is unlimited.

Air War College  
Maxwell AFB, Al 36112