The Heritage Foundation Backgrounder

No. 311 | The Heritage Foundation 214 Massachusetts Avenue N.E. Washington, D.C. 20002 (202) 546-4400

December 8, 1983

WANTED: A SPACE POLICY TO DEFEND AMERICA

INTRODUCTION

In his address of March 23, 1983, President Reagan directed a "comprehensive and intensive effort to define a long-term research and development program, to begin to achieve our ultimate goal of eliminating the threat posed by strategic nuclear missiles." The media quickly, but inappropriately, characterized it as the "Star Wars" initiative.

The message was clearly directed at goals rather than means. The technological basis for this fundamental policy shift involves new technology and innovative concepts in space. Prevailing military space policy does not explicitly provide the clear directives needed to support the President's initiative. It is now essential, therefore, to reexamine and revise U.S. military space policy.

BACKGROUND--SPACE IN NATIONAL POLICY

Present military space policy is set within the framework of national space policy, which was first established by the National Aeronautics and Space Act of 1958. While the NAS Act encompasses the civilian and military aspects of space, the specifics of the act deal mostly with the establishment of the civil space program and the organization of the National Aeronautics and Space Administration (NASA). It was intended to project the peaceful and scientific objectives of the space program to the world community.

The NAS Act set forth the basic national policy for a vigorous U.S. response to the Soviet space challenge. It established executive authority for a new class of programs that did not fit existing civilian agency structures. Congress

recognized that the technical skills and resources needed to achieve meaningful results would necessarily draw on the same industrial skills that supported military development programs.

The NAS Act is explicit in assigning the responsibility for "activities peculiar to or primarily associated with the development of weapons systems, military operations, or the defense of the United States..." to the Department of Defense. It contains no language that excludes or prohibits military use of space for national defense. The governing principle is that military space policy derives from national defense policy, consistent with U.S. laws and treaty obligations.

The basis for a military space policy consistent with international law is derived from the right of all nations to self-defense, a long recognized principle. Within this framework, military activities in space are constrained by specific treaties, principally the 1967 U.N. Outer Space Treaty and the 1972 Anti-Ballistic Missile (ABM) Treaty.

The Outer Space Treaty contains explicit prohibitions against stationing in outer space any object carrying a nuclear weapon or any other weapon of mass destruction, although there are no provisions for verifying treaty compliance. It further prohibits establishing military bases and testing weapons on celestial bodies. Neither of these prohibitions is an impediment to the development of U.S. military space policy, space operations, and new kinds of space weapons currently being considered for deployment. For example, space-based high energy lasers or particle beam weapons are not considered "weapons of mass destruction" and so are not covered by the Outer Space Treaty.

Unlike the U.N. Outer Space Treaty (an agreement signed by more than eighty countries), the ABM Treaty is a bilateral agreement signed in May 1972, by the United States and the Soviet Union as part of SALT I. This treaty restricts the development and deployment of ballistic missile defense systems, specifically including space-based systems. The Treaty does permit research and development on ballistic missile defense technology. Furthermore, the United States went on record that failure to achieve more comprehensive strategic offense arms limitations within five years (of the date of signing), could constitute a basis for withdrawal from the ABM Treaty.

There are several reasons for questioning whether the United States should continue to be bound by the ABM Treaty.[1] However, in any event the Treaty does not preclude a military space policy that includes the conceptual development, and supporting research and technology for space-based ballistic missile defense systems.

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1 See the Heritage Foundation publication, "A Time to Revise the ABM Treaty," in National Security Record, No. 49, September, 1982.

PRESENT U.S. MILITARY SPACE POLICY

Present U.S. military space policy derives from the national space policy announced by President Reagan on July 4, 1982.[2] It closely parallels the policy developed under the Carter Administration, and reaffirms the national security basis for a military space program. The United States has consistently endorsed the use of space for national defense.

The most recent review of military space policy recognizes that space activities support such important military functions as command and control, communications, navigation, environmental monitoring, warning, surveillance, and space defense. The policy directs that future U.S. space programs move toward operational capability. This orientation places importance on the ability of space systems to survive and endure under wartime conditions. In addition, the policy explicitly directs the continued development of an anti-satellite (ASAT) capability with two objectives. The first is to deter attacks on U.S. satellites. The second is to have the ability to attack the space assets of an adversary in time of war.

President Carter endorsed the development of an ASAT weapon in Presidential Directive-37, which spelled out U.S. military space policy. The ASAT weapon development was undertaken in 1978 in response to continued Soviet development and testing of such a weapon.

This program represented a distinct departure from previous military space developments; for the first time since the 1960s, the U.S. undertook a space weapon development program. This program was announced concurrently with the initiation of talks with the Soviet Union on limiting the deployment of ASAT weapons in space. U.S. military space policy reluctantly embraced the development of a single space weapon aimed primarily at matching a Soviet capability. The development of weapons for ballistic missile defense, however, would not have been encouraged by the Carter policy.

As the executive agent for military space activities, the Air Force is the principal architect of U.S. military space posture. Air Force doctrine describing military space operation is stated in Air Force Manual 1-1. This delineates three types of space operations: space support, force enhancement, and defense of space assets.

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2 Present U.S. space policy is the result of an interagency review requested by the President in August 1981. While some of its details remain classified, the essential thrust of the policy is contained in a White House Fact Sheet on National Space Policy, dated July 4, 1982. The military aspects of the policy are outlined further in a Department of Defense Fact Sheet on DoD Space Policy, dated August 11, 1982.

Space support operations involve the construction and operation of facilities shared by a number of military users. The most visible of these are the launch complexes that put military spacecraft into space. In addition, facilities like the Satellite Control Facility provide support to military satellites in orbit. Other radar and optical tracking stations feed satellite data to the Space Computation Center inside Cheyenne Mountain, near Colorado Springs. These facilities provide surveillance over all space activities, including the orbiting of non-U.S. satellites.

Force enhancement describes the military satellite programs that support ("enhance") other traditional military functions. These programs do not directly involve weapons; they provide information and communications for the more effective command and control of military operations.

Reconnaissance satellites provide critical data on Soviet force levels and disposition, facilities, and weapon characteristics. They are the key element in verification of arms limitation agreements, the "national technical means" cited in the SALT agreement. The satellites of the Defense Support Program maintain a continuous surveillance over Soviet missile launch areas, to warn of attack and signal the launch of Soviet spacecraft. Satellite-borne detectors also signal nuclear detonations. A system of military satellites provides worldwide weather observation. These and other observation satellites provide a capability to monitor events on a worldwide basis that would not be practical by any other means.

Military satellites provide effective communications to U.S. forces around the world. Continuous quality communications service is provided to key U.S. installations overseas. These systems extend reliable communications to sometimes remote foreign areas. They also insure that the communication links are under U.S. control. In crisis or rapid deployment situations, communications at new locations can be quickly established. The Defense Satellite Communications System provides heavy route backbone communications on a worldwide basis.

The Fleet Satellite Communications System provides reliable communications to Navy tactical units at sea. The Air Force Satellite Communications system provides a more survivable means of commanding a retaliatory strike in the event of nuclear war. The Global Positioning System will provide military units the ability to accurately determine their position on a worldwide basis at any time. The new Milstar system will greatly increase the survivability of key military communications links and enhance their ability to work effectively in the presence of jamming. Military satellite communications are important to enhancing the ability of U.S. forces to operate effectively anywhere in the world.

Space defense (defense of space assets) is the third category of space operations. It is a set of missions established in 1978, with the space policy delineated in PD-37. The space defense mission includes the development of the U.S. anti-satellite system, the surveillance and tracking of all objects in space, measures to protect U.S. satellites and increase the survivability of space systems, and the command and control of the space defense mission.

By establishing these programs, the United States took action in response to the evident Soviet capability for attacking U.S. military satellites. At that time the U.S. lacked the capability to directly respond to a Soviet attack on its space assets. In the event of such an attack, it could either respond by other military means, risking a broadening military confrontation, or do nothing. U.S. military options for responding to Soviet attacks on U.S. space assets remain the same today. The program to field a U.S. ASAT weapon has yet to reach the final stages of testing. In the meantime, the risks associated with undefended space assets have increased with the growing use of space systems in U.S. military operations.

SPACE DOCTRINE AND MAD

Air Force space doctrine has been structured to support current U.S. defense policy. Strategic deterrence policy has long been built on the capability to deliver a devastating retaliatory blow in response to a Soviet nuclear attack. The policy of Mutual Assured Destruction (MAD) has placed the greatest priority on building and maintaining the readiness of the forces necessary to deliver the offensive counterstrike.

The missions spelled out in Air Force space doctrine are designed to support the offensive weapons systems that are the backbone of U.S. strategic defense policy. The Air Force reconnaissance mission keeps tabs on Soviet missile launchers and provides accurate targeting information. The surveillance mission provides warning of the launching of a missile attack, and information on the expected targets. Satellite communications provide essential links to collect surveillance data for processing and assessment, and for dissemination of Emergency Action Messages to the retaliatory nuclear strike forces. The missions spelled out in Air Force space doctrine are designed to support the offensive weapons systems that are the backbone of U.S. strategic defense policy.

Even the U.S. ASAT program is aimed at deterrence by retaliation. It provides only very limited defense of U.S. satellites in space. It is intended primarily to assure the Soviets that an attack on U.S. space assets could be met in kind with a counter-attack.

Air Force space doctrine also supports the policy of MAD by what it does not provide--a role for ballistic missile defense. Even the task of conducting anti-ballistic missile research, which is permitted under the terms of the ABM Treaty, has been assigned to the Army, and this effort has been centered on defense of hardened strategic assets against Soviet warheads in the final stages of their flight.

In not providing a ballistic missile defense mission, Air Force space doctrine has adhered to U.S. strategic policy of MAD, and the delineation of service roles and missions by the Department of Defense.

The concept of deterrence through Mutual Assured Destruction requires that the U.S. and the U.S.S.R. have the capability to destroy each other as viable societies. This concept (expounded by Robert McNamara in 1962), became the basis for U.S. strategic policy. It was this policy which guided the U.S. position in the Strategic Arms Limitation Talks.

The MAD concept requires that neither side have an effective ballistic missile defense system. Such a system would disrupt the balance of nuclear force levels that the SALT I Treaty sought to establish. Hence, the negotiation of the ABM Treaty became linked to the negotiation of ceilings on offensive nuclear forces. Given rough equivalence of force levels and no effective ballistic missile defense, the MAD concept holds that the cities and populations of each country are held hostage to the other side.

Within the numerical force levels permitted under the SALT agreement, the Soviets developed and deployed a new generation of ICBMs with greatly increased accuracy. These missiles have made large segments of the U.S. nuclear deterrent vulnerable to a Soviet first strike. There is no evidence that the Soviet Union ever subscribed to the concept of MAD. On the contrary, their writings on strategic doctrine have emphasized the merits of a massive use of nuclear weapons against U.S. nuclear retaliation forces, and the advantage of a surprise preemptive strike.

Along with their build-up of strategic nuclear forces, the Soviets have continued to strengthen their defensive systems. While the United States all but abandoned development of ballistic missile defense systems, the Soviets upgraded ABM defenses. These measures have exploited loopholes and, in some instances, violated the ABM Treaty.[3] At the same time, the Soviets have continued to devote substantial resources to civil defense.[4] The clear evidence indicates that the Soviets have

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3 See Senator Steven Symms (R-Idaho), "Soviet Violations of ABM Treaty," Congressional Record, April 14, 1983, pp. S4625-S4627.

4 According to the Central Intelligence Agency, the U.S.S.R. is spending about $2.5 billion a year on civil defense. The U.S. spent $147 million for civil defense in FY 1983.

been striving for nuclear superiority. The MAD concept has not worked.

The MAD framework for U.S. strategic policy was established in the early 1960s. The technological basis for this policy is more than twenty years old. Since that time, technology has advanced markedly in a number of areas. Space missions that were then only concepts near the limits of further expectation now are routine. The U.S. posseses the know-how to build space systems that can be moved and pointed with extreme accuracy, and to acquire and track objects in space. The U.S. has developed small data processors that are the equivalent of what was then a room full of computers. And the U.S. can build weapons effective over the vast distances of space.

Over the years, the application of these advances in technology has been encouraged in those areas that support underlying strategic policy. Advances that tend to undermine the technological foundation of this policy have, at best, not been fully exploited. Under the MAD policy, the United States supported vigorous development and deployment of offensive weapon capability. After the initiation of the SALT process, only minimal support was given to ballistic missile defense technology. The potential of new technological approaches to ballistic missile defense in space has been further thwarted by the lack of a meaningful Air Force mission in ballistic missile defense. Such a mission makes little sense as long as the U.S. continues to cling to a strategic policy based solely on MAD.

NEED FOR A REVISED SPACE POLICY

There is nothing in the National Aeronautics and Space Act that prohibits the development and deployment of weapons in space. If there is a failure to exploit the full capabilities of space for national defense, it is traceable to the policies the United States has chosen.

Intercontinental ballistic missiles (ICBMs), once launched, have been seen as invincible weapons. Rather than attempt to devise a direct defense against ICBM attack, the United States has chosen to insure a devastating retaliatory attack as a deterrent. It has devoted resources and technology to achieving diversity and dispersal of nuclear forces to assure that the retaliatory blow can be delivered. Now the high accuracy of the newer Soviet ICBMs and increasing numbers of submarine launched ballistic missiles (SLBMs) have cast grave doubt on the survivability of two of the three components of U.S. strategic forces. The perceived strategic stability achieved under the MAD doctrine already has been shattered.

At the same time, the United States has failed to pursue vigorously the search for alternatives that might some day offer the promise of an effective defense against ballistic missile

attack. The essence of the Defense Technologies Study initiated by President Reagan is a plan that will direct the best technical resources toward a more acceptable solution to the strategic defense problem. It involves new concepts for systems in space.

It has long been recognized that the most vulnerable portion of the flight of an ICBM is the boost into orbit, when the large rockets are already stressed by thrust and vibration. Any defensive attack on ICBMs during this phase necessarily involves overflight of the Soviet land mass and that can only be accomplished by defensive space-based weapons. The mid-course portion of a missile flight takes place in space.

Any attempt to destroy a missile during this phase implies an attack in space. This holds whether the defensive weapon is based on the ground or in space. The boost and mid-course phases consume most of the total flight time of an ICBM, where the destructive weapon is the most distant from its target.

The Department of Defense has spent over $1 billion on direct energy weapons. By far the largest amount has been spent on the development of high energy lasers. Most of the money has been spent on developing the basic technology needed to build practical weapons and on research on the physical mechanisms involved. The technology includes building lasers capable of megawatt power levels, large optical systems to form beams, and pointing and tracking systems of extraordinary accuracy to direct a beam and hold it on target. It includes experiments to determine the effects of the atmosphere on the beam and the damage effects on optical surfaces and target materials.

High energy lasers can be built and made into effective weapons. More development work is needed to assess the cost and effectiveness of particular applications of these new weapons in comparison with more conventional weapons. These comparisons can only be made when the laser weapon is designed to perform a particular military mission.

The military applications are structured from the missions of the services. The Army is investigating the effectiveness of laser weapons for short range battlefield use and air defense. The Navy's interest has focused on fleet defense against aircraft and missiles. Much of the Air Force effort has been centered on the operation of an airborne high energy laser suited to Air Force missions. The substantial Defense Advanced Research Projects Agency (DARPA) Triad program, although suited for space application, has been on non-mission oriented technology development.

The application of this technology to space missions is lagging, in part because of an insufficient statement of mission requirements. The mission requirements are lacking because of a defense policy focused heavily on strategic offensive capability.

The technology "push" for ballistic missile defense in space is evident. The mission requirements "pull" for the application of that technology has been absent.

The most vocal support for moving ahead on military applications of space-based high energy lasers has come not from the Air Force but from Congress and the General Accounting Office. Senator Malcolm Wallop (R.-Wyo.), a strong supporter of space-based lasers, pointed out that "Since 1981 the Senate has voted twice, by 91 to 3 and unanimously, to tell the Department of Defense to build a space-based laser weapon as quickly as possible.... But...neither the necessary funds nor the essential direction have been brought to this area."

The strongest and most detailed case for a new national strategy incorporating a strong ballistic missile defense program has come from High Frontier, a non-profit organization, headed by Lt. Gen. Daniel O. Graham, USA (Ret.). It has not come from the Department of Defense or closely allied sources.

The orientation of U.S. military space policy and the Air Force Space Doctrine that derives from that policy are significant contributors to the lack of requirements pull. Lack of organizational focus has contributed as well. Prior to the activation of the Air Force Space Command in September 1982, there was no single organization within the Department of Defense with responsibility for the development and operation of space systems. This responsibility was spread over at least four major Air Force commands, with other Air Force, Navy, Army, and Defense agencies participating in particular aspects of space.

The establishment of the new Space Command should be only an interim step toward the formation of a separate military service, with responsibility for space as a military realm, on an equal footing with land, sea, and air. The critical deficiency has been a lack of advocacy for space missions outside of the framework of established Air Force doctrine.

The Air Force has recently moved to amend its space doctrine to accommodate a broader range of space missions. Under the more recent doctrine,[5] a new mission category has been added, called "potential warfighting missions." In this doctrine, the name of the mission of space defense appears to have been replaced by "space control and superiority." In addition, a broad range of potential missions for space-based weapon systems has been added. Included is the statement that, "Such systems could be able to provide target damage against widely distributed and increasing numbers of enemy counterforce and countervalue surface targets." Unfortunately, the language does not make it clear whether this language is intended as a broadening of Air Force space doctrine

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5 Military Space Doctrine, Air Force Manual 1-6, 15 October 1982.

to support new strategic ballistic missile defense initiatives. The potential shift in doctrine must be clearly and unambiguously reflected in stated U.S. military space policy. The new Air Force doctrine must have the necessary foundation at the national policy level.

CONCLUSION

Space policy alone is not the issue. The present space policy is designed to support an obsolete strategic policy. In this context, President Reagan's address of March 23 laid the political foundation for a return to the traditional concept that the military should defend the country against attack.

If advanced technology in space holds the promise of an effective defense against nuclear attack, then the achievement of that goal is inhibited by a number of barriers. Some of the barriers are technological and cannot be overcome without determined effort. Other barriers lie in policies of the U.S.' own choice. These can and must be changed. One positive step would be support for a new space policy that seeks legitimate opportunities in space to achieve an effective ballistic missile defense.

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