

Counterspace Operations and the Evolution of US Military Space Doctrine

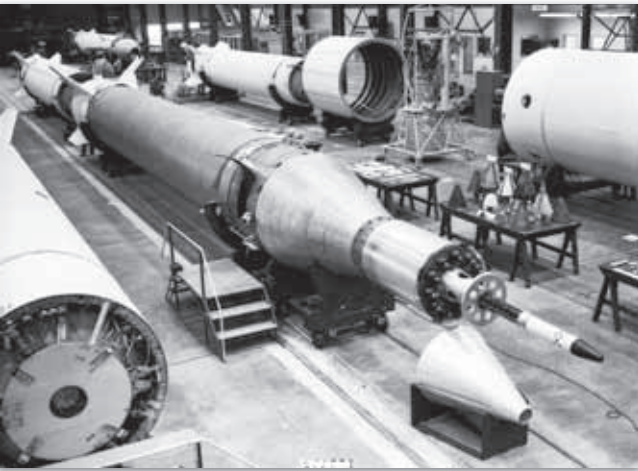
By Prof Michael Sheehan

Since the advent of military space technology in the late 1950's, the United States has gradually developed doctrine to govern their use in relation to wider military and strategic objectives, consistent with US national security policy. Given the unprecedented nature of the space environment and of technological evolution, space doctrine development has been a sporadic and problematic process, undertaken in a political context complicated by debates over the 'weaponization' of space.

US doctrine has evolved from a 'space sanctuary' position in the 1950's to 'counterspace operations' by 2004. It was not until 1982 that the first specific space doctrine document was published, but AFM 1-6 noted the key issues that would dominate all subsequent policy – the need to protect US capabilities from space-based threats, to prevent space being a sanctuary for aggression against the US, and the need to exploit space to enhance US military capability.

Introduction

The United States has been debating the desirability of placing weapons in space since the dawn of the space age. From the 1950's onwards there has always existed a tension between logics driven purely by military considerations, and those reflecting a Clausewitzian concern for the *political* purpose of military forces. The political leaderships' unwillingness to meet the uniformed military's wish to weaponize space has always been predicated on a belief that in the overall calculation of strategic priorities, the United States had more to lose than to gain from space weaponization.



Jupiter-C Missile No. 27 assembly at the Army Ballistic Missile Agency (ABMA), Redstone Arsenal, in Huntsville, Alabama, January 31, 1958.

From the outset, the US reluctance to weaponize space was less a moral commitment to the preservation of space as a sanctuary, than a pragmatic reflection of the belief that there was no compelling *strategic* reason for such weaponry to be developed in the face of competing demands for military resources that were more urgently



needed to meet US requirements to maintain deterrence in particular and American war-fighting capabilities more generally.

During the subsequent years of the Cold War a number of factors emerged that helped to discourage American leaders from pursuing the weaponization, as distinct from the militarization of space. Militarisation was a reality soon after the initial launches as both Superpowers moved to deploy a range of satellites for such purposes as reconnaissance, ballistic missile early-warning, communications, navigation, weapons targeting, meteorology and geodesy.



IBMs SAGE is a large semi-automated air defense system from the Cold War era, deployed in 1958, obsolete by 1960.

Many of these roles were centrally related to the maintenance of nuclear deterrence and the United States was reluctant to initiate or encourage a weaponization of space which might

threaten the Superpower strategic stability achieved by the late 1960's. An attack on the satellites of the other Superpower might well be interpreted as a precursor to the launch of a first-strike, and escalation would be all the harder to halt as the communication and reconnaissance assets represented by the satellites were lost. Because of its perceived importance to strategic stability, space became effectively a 'sanctuary' as far as the deployment of weaponry was concerned.



*Official portrait of
General Oris
Johnson (USAF).*

However, as US reliance on military space developed during the 1960's, this 'space sanctuary' assumption began to be questioned within the USAF. In 1968 General Oris Johnson noted the momentum behind the Soviet military space programme and suggested that 'the necessity for effective space defense weapons is both obvious and urgent'¹. Studies carried out by the Ford administration as early as 1976 suggested that the United States was becoming increasingly dependent on satellites for various functions and that little provision had been made for satellite survival in wartime.²

During the 1980's, the United States pursued weapons development programmes in both the anti-satellite and ballistic missile defence

realms. The ASAT, a Miniature Homing Vehicle launched from an F-15 aircraft, never went into operational deployment, while the Strategic Defence Initiative remained a research and development programme, with only limited testing, and again, no deployment. However, while President Reagan's initiative took the political community by surprise, it was in line with the revised USAF doctrine which had come out the previous year, evidence that the relationship between doctrinal evolution and White House policy should be taken seriously.

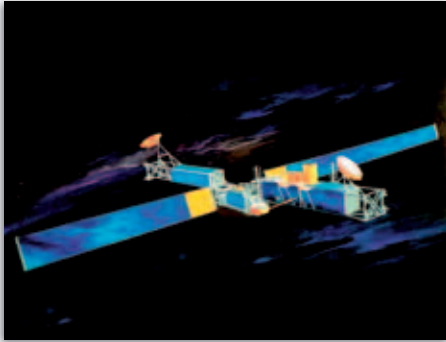
With the passing of the Cold War it was natural that the United States would eventually re-evaluate the utility of its Cold War policies in the light of the new strategic environment. The demise of the Soviet Union meant that America no longer had to fear the reactive response of a credible rival should it desire to deploy weapons in space.



A Soviet Tu-95 Bear-D strategic bomber aircraft.

Nor did the Cold War concerns about the effect such a move might have on strategic stability carry the same weight as they once had. The

treaty regime has also become less constraining.



Milstar a global military communications system was launched on 7 February 1994 aboard a Titan IV expendable launch vehicle.

Historically, much of the opposition to the deployment of space weaponry derived from concerns about the effect of such a development on the arms control treaty regime that had emerged to reinforce the stability of strategic nuclear deterrence. The vast majority of the arms control treaties signed between 1971 and 1991 relied upon satellites as the primary 'national technical means' for verification of treaty compliance by the other parties. Non-interference with these systems was therefore written into the treaty terms, implicitly providing the peacetime protection of international law for each sides military satellite systems.

Most crucial of the arms control treaties was the ABM Treaty of 1972. This agreement underpinned the strategic reduction treaties that followed, and its terms banned the testing and deployment of weaponry capable of performing the ballistic missile defence role, a technology that strongly overlapped with anti-satellite weaponry. Any system with an exo-atmospheric missile defence capability would be a highly

effective anti-satellite system. With the withdrawal of the United States from the treaty, this factor is no longer relevant as a restraining factor on space weaponization. The only treaty that specifically forbids such weaponization is now the Outer Space Treaty of 1967, which relates specifically and solely to weapons of mass destruction. There is no international treaty obligation for the United States to refrain from deploying conventionally armed weaponry in space, only a residual commitment not to target satellites crucial to the monitoring of compliance with arms control agreements.

A wide range of elements would need to be in place if the United States were to proceed to deploy space weaponry in an attempt to achieve space control, but three 'stand out as especially critical: sound doctrine, viable technology and political will'.³ Such debate as there has been on this subject tends to focus on the difficulties or otherwise of acquiring the technology, but it is the doctrinal and political criteria that are the most crucial, and ultimately determining factors. History furnishes a long record of the tendency of the countries of the West to embrace new forms of technology which promise to provide military advantages over their rivals, and this tendency has been highly instrumental in making possible the domination of 'the West over the Rest' that has characterised the past three centuries.⁴ There is no reason to believe that the United States would deploy weapon systems simply because the technology existed. Such weapons would need to address a genuinely perceived threat and to

be appropriate within prevailing doctrine for them to be desirable.



Side view of the Capital Building, Washington DC.

The very fact that there is currently no credible military rival to the United States means that Washington is not driven by an urgent strategic need to accelerate space weaponization. Nor, despite the vigour of the ballistic missile defence programme, is appropriate technology ripening at a rate that would force an administration's hand. To focus on the gestation of technology alone is therefore a misleading way of attempting to predict whether US space weaponization is imminent or likely. A better guide is the evolution of US military doctrine as it pertains to the use of space. The most powerful 'driver' favouring such weaponization is in fact the evolving *doctrine* of the United States armed forces.

Doctrinal Evolution during the Cold War

In parallel with the evolution of political attitudes towards military space, there has been a crucial evolution of USAF and Pentagon military space doctrine. Doctrine lies at the very heart of modern warfare for the advanced industrial states. 'It represents the central beliefs

for waging war in order to achieve victory...it is the building material for strategy. It is fundamental to sound judgement'.⁵ According to the US Air Force, doctrine represents the central beliefs of the armed forces about the best way to wage war⁶, and reflects 'an analysis of the current mission, its history, the threat, the evolving state of technology, and the underlying military concepts of operations'.⁷ Doctrine is the structured thinking about military operations that guides the training, equipping and employment of military forces.



Aerial view of The Pentagon.

Different levels of doctrine can be distinguished. Drew makes a useful distinction between fundamental, environmental and organisational doctrine.⁸ The former refers to fundamental principles of war, applicable in all operating mediums. Environmental doctrine in contrast, refers specifically to a particular medium, such as the sea or space, and is significantly shaped by the physical characteristics of that particular medium. Organisational doctrine defines how a branch of the

armed forces believes war should best be conducted in its own medium. Significantly, organisational doctrine is highly technology dependent, 'and is often tempered by local political constraints'⁹, both prominent features in the contemporary American debate over space weapons.

Doctrine is normally largely based on previous wartime experience, and the absence of such experience contributed to the long delay in the development of a genuine military space doctrine for the armed forces of the United States, given that 'while space operations have been conducted since the late 1950's, no hostilities have ever occurred in space'.¹⁰ In the absence of such experience, space doctrine had to be derived from theory.

The first two US doctrine documents with relevance to military space made no mention of it, other than to include it as an *environment* within the overall definition of 'aerospace'.¹¹ It was not until 1971 that the USAF first outlined the 'Role of the Air Force in Space' in its revised version of AFM 1-1, the basic doctrine of the US Air Force. American space forces were now defined as having two national responsibilities, to 'promote space as a place devoted to peaceful purposes', and to 'insure no other nation gains a strategic military advantage through exploitation of space'.¹² These roles appeared unchanged in the 1975 version of AFM 1-1. In 1979 however, the doctrine was significantly revised and the new version notably expanded the treatment of space operations listing three responsibilities; to protect American use of space, to enhance the performance of land,

sea and air forces, and to protect the United States from threats in and from space.¹³

The first *specific* space doctrine document appeared in 1982. Air Force Manual (AFM) 1-6 identified three roles for space power, these being to strengthen the security of the United States, to maintain American space leadership, and to maintain space as an environment where nations could enhance the security and welfare of mankind.¹⁴ The wording reflected the continuing American division between a desire to preserve space as a non-weaponized sanctuary, and a recognition of its longer-term potential as a theatre of military operations. It reaffirmed the subservience of military doctrine to political control, emphasising the constraints imposed by US national law, international law and national policy.¹⁵

The military objectives of US space forces were described as being to maintain America's freedom to use space, to increase the readiness, effectiveness and survivability of US forces, to protect US resources from threats operating in or through space, to prevent space from being used as a sanctuary for aggressive systems by adversaries, and to exploit space to conduct operations to further military objectives.¹⁶ The 1982 doctrine also described two existing and three potential missions. The former consisted of force enhancement and space support. These are roles that became routine over the subsequent two decades, the use of satellites to increase the effectiveness of terrestrial forces, for example by more accurate surveillance, and the acquisition of an array of capabilities able to

sustain the American military use of space. The potential missions were space based weapons for deterrence, space-to-ground weapons, and space control and superiority.¹⁷ This document, which appeared a year before President Reagan's famous 'Star War's' speech, called for the development of space-based weapons capable not only of contributing to a ballistic missile defence system, but also of carrying out direct attacks against military targets on the Earth's surface with space-based weaponry. AFM 1-6 was updated in 1984 and 1992, but there were no significant changes to the objectives established in the 1982 version.

During the 1970's and 1980's the United States military saw space as an environment which supported defence capability and policy at the *strategic* level. Satellites played a crucial role in the maintenance of strategic stability and deterrence, and they were force-multipliers of terrestrial capabilities in terms of broad surveillance and long-range communications. US doctrine reflected this thinking, and calls for programmes to enhance satellite survivability related to these strategic roles. In the post-Cold War period however, the survivability issue became increasingly important as satellites began to play a direct role in terrestrial warfighting.

US Doctrinal Evolution in the Post-Cold War Period

During the 1990's, the United States armed forces increasingly looked to the significance of space as the 'new high ground'. In 1996 Air Force Chief of Staff Ronald Fogleman released a new list of 'core competencies'

required of the USAF, of which the first was 'air and space superiority'.¹⁸ This objective was repeated in the updated version of AFM-1-1, the USAF's first significant effort to produce a space doctrine, which called for the Air Force to gain and maintain dominance of space.¹⁹



F-117 Nighthawk used the the Iraq War, 1991.

Doctrine in the 1990's did not place significant emphasis on counter space operations.²⁰ AFDD-1, *Air Force Basic Doctrine*, defined counterspace operations as 'those kinetic and non-kinetic operations conducted to attain and maintain a desired degree of space superiority by the destruction, degradation or disruption of enemy space capability'. AFDD-1 stated that 'to ensure that our forces maintain the ability to operate without being seen, heard or interfered with from space, it is essential to gain and maintain space superiority'.²¹ In



Bombing of Zastava factory, post-strike bomb damage assessment, Kosovo.

1991, during the First Iraq War, the US had demonstrated a major asymmetric advantage with its space capabilities, but conflicts in the 1990's did not see attempts by adversaries to counter these capabilities, other than a fairly effective effort by Yugoslavia to use camouflage to negate the effectiveness of NATO reconnaissance capabilities during the Kosovo War. Nevertheless, Air Force planners argued that the US needed to be able to accomplish three key missions, space surveillance, space negation and space protection,²² and that the US should proceed with the development of the technology to achieve these goals including the acquisition of ASAT systems, space mines, uplink and downlink jammers, and space decoys.



Concept of an Anti-Satellite (ASAT) Weapon.

The US Air Force and Joint Staffs codified operational level space operations doctrine through Joint Publication 3-14, *Joint Doctrine for Space Operations*, (1992), and Air Force Doctrine Document 2-2, *Space Operations*, (1998). JP 3-14, which deals with joint operations doctrine, concentrates on global space forces, though there is some treatment of theatre operations. AFDD-2 deals with the command and control of space forces, both at the global and theatre levels, and the

planning and implementation of space operations, again at both global and theatre levels.

The USAF now seems to have moved fully away from the 'space sanctuary' concept to a position consonant with a 'high ground' posture.²³ Certainly the terminology is prominent in key documents, such as AFDD 2-2, which declares that, 'space-based forces hold the ultimate high ground, offering the potential for permanent presence over any part of the globe'.²⁴ In addition US Space Command's *Long Range Plan* anticipated a future where, by 2020 any ballistic or cruise missiles could be targeted, but in addition, the same space weapons could target high-value terrestrial targets'.²⁵ This reflected the view that had been present in USAF doctrine since the 1982 publication of AFM-16. During the 1990's, the US military space doctrine evolved from an environmental to an organisational doctrine, and like all such doctrine, it was technology-dependent, but also sensitive to national political constraints.

The growing debate over the utility of military space systems during the 1990's led Congress to pass legislation included in the Defense Authorisation Bill for fiscal year 2000, which established a special Space Commission to evaluate the need for reform of US military space organisation and capabilities.²⁶ Donald Rumsfeld chaired the commission until he was nominated by President George W. Bush to serve as Secretary of Defense as the commission was finalising its report. As Secretary of Defense, Rumsfeld was able to ensure that many of the commission's recommendations

were implemented. As a result a single military service, the USAF, became the Department of Defense's executive agent for space, with the Under Secretary for the Air Force assuming direct responsibility for all national security space, including the National Reconnaissance



*Official portrait of
U.S. President
George W. Bush.*

Office.²⁷ In March 2001, a Space Policy Coordinating Committee was established under the National Security Council.

The Commission reaffirmed the traditional American commitment to the peaceful uses of space declaring its 'conviction that the US has an urgent interest in promoting and protecting the peaceful use of space'.²⁸ Nevertheless, it also called for the development of physically destructive anti-satellite capabilities and the development of 'live firing ranges' in space to test these systems on a



The UN Headquarters in New York.

regular basis.²⁹

The Report recommended a general ignoring of alleged legal impediments to the use of weapons in space. It did this by asserting that the US and most other nations interpret 'peaceful' to mean 'non-aggressive', and that non-aggressive incorporates the legitimate right of self-defence, including 'anticipatory' self-defence under the UN Charter and Article III of the Outer Space Treaty. In addition it noted that 'there is no blanket prohibition in international law on placing or using weapons in space, applying force from space to earth or conducting military operations in and through space'.³⁰



Current Space Doctrine

The merger of US Space Command and US Strategic Command in October 2002 to form the new USSTRATCOM meant a requirement for updating of the space doctrine, a process encouraged also by experience derived from operations in Afghanistan and Iraq. The merger meant that the new joint space support teams would integrate all STRATCOM missions, including space, global strike, global ISR, information operations and missile

defence.³¹ USSTRATCOM carries out its functions through four primary missions, space support, force enhancement, force application and space control. Space support refers to the operations needed to enable space capability to be exercised, for example space launch and satellite operations. Force enhancement embraces the force multiplier effects to terrestrial forces that have become



2nd Battalion, 503rd Infantry Regiment (Airborne), during Operation Destined Strike, Afghanistan.

familiar over the past thirty years, such as intelligence gathering, early warning, communications, navigation and weather forecasting. In these functions the armed forces are supplemented by capabilities from civil, commercial and national space systems. Force application involves applying force either from or through space. Space forces can target land, sea and air forces. They can do this either by acting as the 'gun sights' for terrestrial weapon systems, or by directly attacking terrestrial forces with space to ground weapons, as AFM 1-6 called for as early as 1982. The ability to carry out all these functions generates *space control*, defined as 'combat, combat support, and combat service support

operations to ensure freedom of action in space for the United States and its allies and, when directed, deny an adversary freedom of action in space'.³²

The operations in Afghanistan and Iraq showed that the existing space operations doctrine provided inadequate detail regarding the coordination and integration of space forces supporting theatre operations. In addition, Iraq's attempts to jam US global positioning system signals in 2003, showed that US adversaries had understood the importance of US military space capabilities and were beginning to develop capabilities to counter and disrupt them.³³ Even though the Iraqi efforts were not successful, and were defeated by GPS guided munitions, the experience reinforced the perceived requirement to develop a doctrine relating to counter-space operations. Work on such a document was already underway at the time of the 2003 Iraq War.

In August 2004 the United States Air Force published AFDD 2-2.1, *Counterspace Operations*, the first doctrinal document on this critical subject. USAF Chief of Staff General Jumper noted that USAF doctrine was, 'evolving to reflect technical and operational innovations'.³⁴ The rationale for the doctrine is succinctly presented at the outset, as following from the same military logic as the requirement for air superiority, to gain control of the skies at the outset of a campaign and deny them to the enemy.

AFDD 2-2.1 declares firmly that 'space superiority provides freedom to attack as well as freedom from attack'.³⁵ Counterspace embraces both

offensive and defensive operations, both of which are dependent upon effective space situation awareness, (SSA). Defensive counterspace operations preserve the US ability to exploit space for military purposes and include passive satellite defences, such as the use of camouflage, concealment, deception, dispersal and the hardening of systems. Offensive counterspace operations are those designed to deny an adversary, the ability to use space to support their military operations. The methods employed to do this may be permanent or reversible and embrace the 'five Ds' – deception, disruption, denial, degradation and destruction. The more dependent an adversary is on space capabilities, the more vulnerable they are to counterspace operations. Offensive counterspace operations may target the ground or space segment, or the links between them. Ground segment may include both ground stations and launch facilities. The methods used to achieve these objectives depend on the target and may range from laser weapons to special operations forces.



NORAD Command Center, Cheyenne Mountain, Colorado, circa 2005. (USAF)

US counterspace operations, like all other US military operations, reflects an effects-based methodology, to allow the choice of the tactics

most appropriate to achieving the objectives. Among other things this requires careful planning to ensure that objectives at every level, tactical, operational and strategic are taken fully into consideration when



SM-3 missile just after launch to destroy the NRO-L 21 satellite.

planning counterspace operations, AFDD 2-2.1 makes the important points that neither adversary use of space nor counterspace operations by an opponent necessarily requires that the enemy be a space-faring nation themselves. US space capabilities can be attacked at the ground segment as well as the data links, and the space segment can be attacked by weapons fired from the earth. Similarly adversaries can purchase space services and products such as imagery and communications from third parties.

Non-space ASAT options

Proponents of the acquisition of ASAT capabilities by the US argue that

ASAT weapons are essential if the US is to dominate the space environment, because they are essential to the protection and negation roles.³⁷ However, it is important to remember that an anti-satellite system does not need to be space-based, or to necessarily involve the physical destruction of the satellite. Jamming, spoofing and control seizure can be done from the ground, and terrestrial elements of the satellite system, such as ground control, can be attacked by conventional terrestrial methods. Critics of space-based ASAT systems, such as DeBlois et al, after a detailed survey of possible technologies, argue that 'space weapons are generally not good at protecting satellites capabilities', and suggest that protection would be better served by reducing satellite vulnerability to signal interference and focussing on conventional terrestrial and political counterspace options.³⁸

The objective of US space control is essentially information dominance in wartime. In order to achieve this it is the information flow that is critical and not necessarily the information systems themselves. Current US space control thinking tends to focus on physical assets, rather than on capabilities.³⁹ In reality however it is information dominance rather than asset destruction which is needed. Space control is about dominating the space lines of communication, and for this the requirement is simply to impact effectively upon one of the segments of the space system or the links between them.

In 1999 Deputy Secretary of Defence John Hamre testified before Congress that DoD views on space control emphasised the temporary denial of

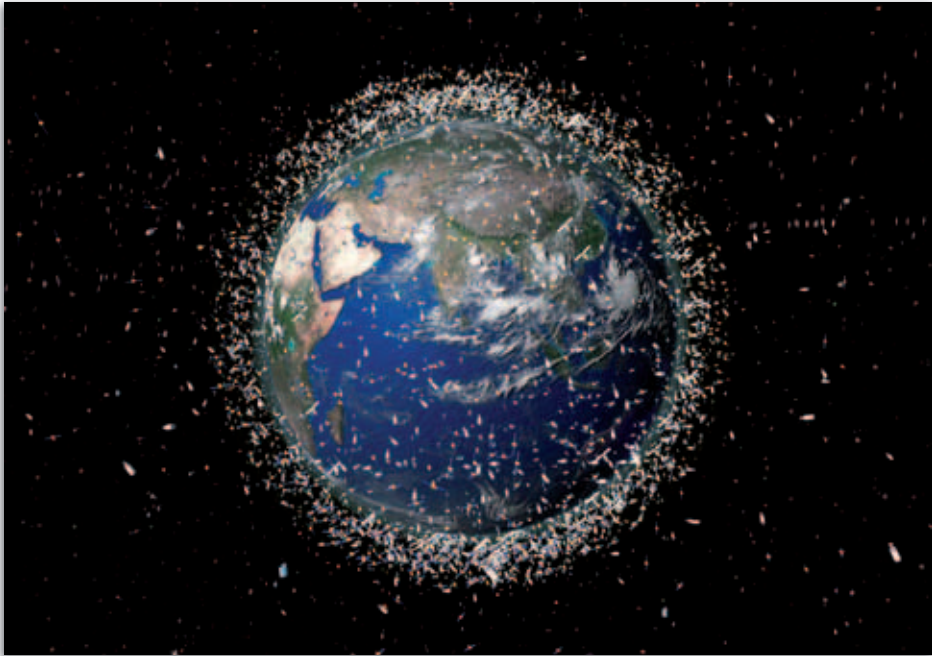
space to an enemy, rather than the destruction of space systems.⁴⁰ Since



Official portrait of John J. Hamre, a former Deputy Defense Secretary under President Clinton.

space is a global commons, return of full access to space for all nations as soon as possible must be part of the 'exit strategy' for space operations in wartime.⁴¹ This requires the US to possess the full spectrum of military options for counterspace operations, (lethal to non-lethal) and a doctrine that produces desired effects with minimum impact on the commons. The 2001 Space Commission report re-emphasised this, noting that while the US reserves the right to destroy either ground sites or satellites if necessary, the preferred approach is to use methods that are 'temporary and reversible in their nature'.⁴²

Offensive counterspace, aimed at denying the enemy the use of space in wartime, can be carried out in three ways. First, targeting the enemy's terrestrial space segment, their launch infrastructure, satellite command and control systems and satellite communication nodes.⁴³ These capabilities are already possessed by the United States. The second approach would be to target the communications segment between the satellite and its associated ground equipment. The United States currently has the capability to successfully jam the ground segment, but has no capacity to interfere with



A image from European Space Agency of satellites in orbit around the Earth.

the space segment.⁴⁴ The third approach would be to launch a direct physical attack against the satellite itself.⁴⁵ The United States does not currently have the capacity to carry out such attacks, except by using nuclear warheads, which is against a number of treaties to which the US is a party and which would create damaging debris and EMP effects in the satellite orbit and upper atmosphere, or by using residual ASAT systems, such as the Space Shuttle, which are not optimised for such a role.

AFDD-1 states that the United States must achieve and maintain space superiority, but at no point does it suggest that space weapons are required to do so.⁴⁶ There are a variety of alternative ways to achieve the same end, including 'implementing an international agreement to shut off a satellites downlink, terminating imagery sales,

destroying ground sites, destroying or disrupting system software programs, spoofing or jamming link signals, damaging or disrupting satellite subsystems, and disabling or destroying the satellite'.⁴⁷ The use of ASAT weapons is the least attractive option. In an earlier technological era, ASAT weapons appeared to be the only reliable way to achieve control of space, but in the contemporary information dominated society, a



Concept of a Defense Support Program satellite.

much wider array of techniques is available.⁴⁸ Even if physical destruction of a satellite system was seen as necessary, the US could attack the ground segment or space segment using weapons launched from the Earth's surface at a fraction of the cost and difficulty that would be involved in weaponizing space.⁴⁹

The Political Context

The United States continues to maintain a dualistic posture on space policy. US Undersecretary of the Air Force, Peter Teets, argued that the United States had come to



Portrait of U.S. Undersecretary of the Air Force, Peter Teets.

take its unrestricted access to and exploitation of space for granted. But in doing so, it had become reliant on a capability whose continuation could no longer be simply assumed, but required the acquisition of survivable launcher and satellite assets. Even while supporting the peaceful use of space by all countries, 'prudence demands that we ensure the use of space for us, our allies and coalition partners, while denying that use to adversaries'.⁵⁰

While there may be clear military rationales in favour of the weaponization of space by the United States, it is a decision that would have considerable political implications. It is also true that to date there have always existed powerful domestic

cultural and political obstacles in the United States to such a development. Since 1964, USAF doctrine has consistently recognised that national objectives and policies are a fundamental constraint on doctrine, but that such policies are evolutionary over time, as are the potential threats and developments in military technology.⁵¹

US National Space Policy states that the United States is committed to the exploration and use of outer space 'by all nations for peaceful purposes and for the benefit of all humanity'.⁵² The



Views of the extravehicular activity using a nitrogen-propelled hand-controlled manned maneuvering unit (MMU) during STS 41-B taken 11 February 1984.

policy does allow for the use of space for the purpose of national defence and security, but nevertheless, the weaponization of space would seem to run counter to a very long-standing national policy.

It is also notable that the US armed forces are aware of the need to respect the concept of space as a 'global commons', so that if 'the United States impedes on the

commons, establishing superiority for the duration of a conflict, part of the exit strategy for that conflict must be the return of space to a commons allowing all nations full access'.⁵³ Current US military space doctrine is careful to emphasise the political implications of military operations in space and the need to be sensitive to legal issues. USDD 2-1.1, *Counterspace Operations*, insists that 'in all cases, a judge advocate should be involved when considering specific counterspace operations to ensure compliance with domestic and international law and applicable rules of engagement'.⁵⁴



Leonid Brezhnev and Gerald Ford are signing joint communiqué on the SALT I treaty effectively established parity in nuclear weapons between the two superpowers circa 1970.

Space begins where laws change. Where international law replaces domestic laws of national sovereignty and where the laws of orbital mechanics take over from the laws of aerodynamics. International law would clearly mitigate against a move to weaponization. However, the lack of response by the international community to the growing threat to space as a sanctuary suggests that the United States would not significantly alienate itself from the international community if it crossed the threshold to the weaponization of space. There has been no reaction to the doctrinal evolution over the past decade, and

the ultimately submissive reaction to the US withdrawal from the ABM treaty is suggestive.

Certainly the United States has shown a consistent reluctance to support efforts to develop a more constraining arms control regime for space, and has argued at the UN Conference on Disarmament that it sees the current international space regime as entirely satisfactory and in no need of renegotiation.⁵⁵ This position is likely to be maintained as long as there is no viable challenger to US dominance of military space.

The United States could, at some cost, place weapons in space. That it has not yet done so is because such a step would be in conflict with long-established national space policy. The existing US national space policy is the main barrier to the weaponization of space, and is 'a remnant of space policies developed during the Cold war'.⁵⁶ The non-weaponization of space is due to an American self-denying ordinance, not primarily to commitments imposed by international law. As General Estes, Commander in Chief of US Space Command said in 1997, 'we... support whatever decisions our elected leadership may arrive at with regard to space control and the weapons systems required'.⁵⁷ Nevertheless, it has been growing increasingly clear over the past two decades, that the USAF has a doctrinal commitment to the weaponization of space and in carrying out its duties has lobbied the political leadership to accept what it sees as the logic reflected in the doctrine, and pursue the development of technology that would allow the doctrine to be fully implemented. The current policy is designed to allow the

United States to gradually acquire the capability to implement the doctrine once US military space hegemony is seriously challenged by other states. Until such a development appears imminent there is no requirement for the US to cross its self-imposed threshold.

Crucial to the emergence of space weaponization would be the abandonment of the idea that space constitutes a strategic sanctuary. As Gray and Sheldon put it, 'in order for space power to reach its full potential however, space must be recognised as a geographical environment for conflict that is, in a strategic sense, no different from the land, sea, air and the electromagnetic spectrum, (EMS).⁵⁸

The final political disavowal of the 'space as sanctuary' concept has not yet occurred. Such a move would be a crucial threshold decision.⁵⁹ However, while it has not yet happened, US military doctrine is pushing strongly in that direction. Where the traditional political perspective remains crucial is that while the USAF/DOD arguments for satellite vulnerability, counterspace capability and wartime space control are compelling, their logic does not necessarily prove that *weaponization* is the answer, given that alternative strategies exist for addressing these issues. In the longer term, the outcome of this debate is critical, not just for the United States, but for all the world's leading industrial states.

Notes

¹Maj-Gen Oris B Johnson, 'Space: Today's First Line of Defense', *Air University Review*, Vol 20, No 1, (November-December 1968), p. 96.

²Paul B stares, *The Militarisation of Space, US Policy 1945-1984*, (Ithaca, NY, Cornell University Press, 1984), pp. 169-70.

³Richard S Stapp, *Space Dominance: Can the Air Force Control Space?*, USAF Air Command and Staff College, 1997, p. 6.

⁴For a sustained argument along these lines see Victor Davis Hanson, *Why The West Has Won*, (London, Faber and Faber, 2001).

⁵General Curtis LeMay, USAF, 1968. Quoted in Richard S Stapp, *Space Dominance: Can the Air Force Control Space?*, (Maxwell AFB, AL, Air Command and Staff College, 1997), p. 8.

⁶Department of Defence, Joint Publication.1, *Joint Warfare of the Armed Forces of the United States*, 1995, I-3.

⁷Howell M Estes III, (C in C, USAF Space Command), 'Space and Joint Space Doctrine', *Joint Forces Quarterly*, (Winter, 1996-97), p. 60.

⁸Dennis M Drew, 'Of Trees and Leaves- A New View of Doctrine', *Air University Review*, (January-February, 1982), pp 40-48.

⁹Charles D. Friedenstein, 'The Uniqueness of Space Doctrine', *Air University Review*, (November-December, 1985). Accessed at www.airpower.maxwell.af.mil/airchronicles/aureview/1985/nov-dec/frieden.html, p. 1.

¹⁰Stapp, *Space Dominance*, p. 9.

¹¹*Air Force Manual (AFM) 1-2, United States Air Force Basic Doctrine*, 1959; *AFM 1-1, USAF Basic Doctrine*, 1964.

¹²*AFM 1-1, United States Air Force Basic Doctrine*, 1971, pp 2-4.

¹³*AFM 1-1, United States Air Force Basic Doctrine*, 1979, pp 2-8.

¹⁴*AFM 1-6, Military Space Operations*, 1982, p. 1.

¹⁵*AFM 1-1*, 1979, p.2.

¹⁶*AFM 1-6*, p. 5.

¹⁷*AFM 1-6*, pp. 6 and 9.

¹⁸Global Engagement: A Vision for the 21st Century Air Force.

¹⁹Department of the Air Force, AFM 1-1, *Basic Aerospace Doctrine of the United States Air Force*, 1992, p. 6.

²⁰AFDD-1, *Air Force Basic Doctrine*, 2003, p. 52.

²¹AFDD-1, *Air Force Basic Doctrine*, 1997, p. 30.

²²USAF Scientific Technology Advisory Board, 'Space Technology Volume', *New World Vistas: Air and Space Power for the 21st Century*, Report to the USAF Chief of Staff, (Washington, DC, US Government Printing Office, 1995), p. ix.

²³Samuel McNiel, 'Proposed Tenets of Space Power: Six Enduring Truths', *Air and Space Power Journal*, (Summer, 2004), p. 4, (web offprint).

²⁴AFDD 2-2, (2001), p. 11.

²⁵US Space Command, *Long-Range Plan: Implementing USSPACECOM Vision for 2020*, (Peterson AFB, CO; US Space Command, Director of Plans, 1998), p. 20.

²⁶House, *Conference Report on S.1059, National Defense Authorisation Act for Fiscal Year 2000*, 106th Congress, 1st session, 5th August 1999, H.R. 106-301, sec. 1621-30, 'Commission to Assess United States National Security Space Management and Organisation'.

²⁷John E Hyten, 'A Sea Peace or a Theater of War?', *Air and Space Power Journal*, Fall 2002, p. 2.

²⁸*Report of the Commission to Assess United States National Security Space Management and Organisation*, (Washington, DC, 2001), p. 5.

²⁹*Ibid*, p. 29.

³⁰*Ibid*, p. 37.

³¹Schull, *Space Operations Doctrine*, p. 2.

³²AFDD 2-2.1, (2004), p. 54.

³³Schull, *Space Operations Doctrine*, p. 3.

³⁴AFDD 2-2.1, Counterspace Operations, (Air Force Doctrine Centre, August 2004), *Forward*.

³⁵AFDD 2-2.1, p. 1.

³⁶AFDD 2-2.1, p. 4.

³⁷Stapp, *Space Dominance*, p. 14.

³⁸Bruce M DeBlois, Richard L Garwin, R Scott Kemp and Jeremy C Marwell, 'Space Weapons: Crossing the US Rubicon', *International Security*, Vol 29, No 2, (Fall, 2004), p. 62.

³⁹Shawn J Barnes, *Virtual Space Control: A Broader Perspective*, (Maxwell AFB, AL, Air Command and Staff College, 1998), p. 1.

⁴⁰'Senate Committee Focuses on Military Space Programs, People', *Air Force News*, 25 March 1999.

⁴¹Hyten, p. 8.

⁴²Space Commission Report, p. 28.

⁴³AFDD -1, *Air Force Basic Doctrine*, 1997, pp 47-48.

⁴⁴Barnes, *Virtual Space Control*, p. 8.

⁴⁵Michael R Mantz, *The New Sword: A Theory of Space Combat Power*, (Maxwell AFB, AL, Air University Press, 1995), p. 22.

⁴⁶James P Cashin and Jeffrey D Spencer, *Space and Air Force: Rhetoric or Reality?*, (Maxwell AFB, AL; Air Command and Staff College, 1999), p. 35.

⁴⁷Cynthia A. S. McKinley, 'When the Enemy Has Our Eyes', <http://fas.org/spp/eprint/mckinely.htm>, p. 20.

⁴⁸*Ibid*, p. 28.

⁴⁹Ioannis Koskinas, 'Space Weapons Foolosophy: Should the United States be the First Country to Weaponise Space?', *Air and Space Power Chronicles*, Chronicle Online Journal, www.airpower.maxwell.af.mil/airchronicles/cc/koskinas.html, p. 5.

⁵⁰Teets, *National Security Space*, p. 4.

⁵¹AFM 1-1, *United States Air Force Basic Doctrine*, (1964 version), p.i.

⁵²President of the United States, *US National Space Policy*, (White House, Washington, DC, 1996).

⁵³General Lance Lord, Commander, USAF Space Command, 'The

Argument for Space Superiority:
Remarks Prepared for Air War
College', Maxwell AFB, AL, 29 March
2004. At [www.peterson.af.mil/
hqafspc/Library/speeches/Speeches.
asp?YearList=2004](http://www.peterson.af.mil/hqafspc/Library/speeches/Speeches.asp?YearList=2004), p. 8.

⁵⁴AFDD 2-2.1, *Counterspace Operations*,
p. 39.

⁵⁵*Statement by John R Bolton, US
Under Secretary of State for Arms
Control and International Security*, to
the Conference on Disarmament,
Geneva, 24 January, 2002. Cited in
David Grahame, 'A Question of
Intent: Missile Defence and the
Weaponization of Space', *Basic Notes*,
1 May 2002, p. 1. at [www.basic.org/
pubs/Notes/2002NMDspace.htm](http://www.basic.org/pubs/Notes/2002NMDspace.htm), p.2.

⁵⁶Cashin and Spencer, *Space and Air
Force*, p. 24.

⁵⁷David W Ziegler, *Safe Havens:
Military Strategy and Space Sanctuary
Thought*, (Maxwell AFB, AL; Air
Command and Staff College, 1998), p. 21.

⁵⁸Gray and Sheldon, 'Space Power and
the RMA', p. 2.

⁵⁹George M. Moore, Vic Budura and
Joan Johnson-Freese, 'Joint Space
Doctrine: Catapulting into the
Future', *Joint Forces Quarterly*,
(Summer, 1994), p. 74.

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