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We present the following plan: The United States Federal Government should establish a policy substantially increasing the number of persons serving in the Armed Forces by mandating the creation of a United States Space Force (USSF) as a separate branch of the Armed Forces. The USSF will assume control of all non-ICBM space-related activities in the United States Armed Forces and will undertake the recruitment and training of an officer corps trained specifically in space warfighting and defense capabilities.

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Contention 1 is Space Militarization:

First, the air force is developing a new generation of space weapons to counter future threats to U.S. supremacy.

Theresa **Hitchens**, Vice-President of the Center for Defense Information, May 20, **2004** ("National Space Policy: Has the U.S. Air Force Moved the Goal Posts?" http://www.cdi.org/program/document.cfm?DocumentID=2231&from_page=../index.cfm)

Still, even for a lay person, it is quite obvious that U.S. plans for military space have changed dramatically over the last four years since the inauguration of President George W. Bush. U.S. Air Force officials in particular have been increasingly aggressive in pushing a stragegy of "space dominance" that envisions a future that includes weapons, and warfighting, "in, from and through space." Indeed, the latest Air Force force planning document, the November 2003 Transformation Flight Plan, explicitly cites a number of anti-satellite weapons and space-to-Earth weapons being pursued for deployment around 2015 to 2020. That may sound a long way off, but given the 10 to 15 year development cycles for most U.S. weaponry, it means that research and development is either already ongoing or will be soon if those deployment goals are to be achieved. Some of the programs listed in the plan include a Ground-Based Laser anti-satellite weapon that could be set from "stun" to "kill;" an Air-Launched Anti-Satellite Missile; a Space-Based Radio-Frequency Weapon to be used against enemy satellites; and Hypervelocity Rod Bundles, long ago knick-named 'Rods From God,' to strike hard and deeply buried targets from space.

Unfortunately, the air force is not qualified to operate in space: a new operations force must be created to maintain U.S. leadership.

Richard **Moorehead**, U.S. Army Major, July **2004** (Military Review, Will We Need a Space Force?, http://www.au.af.mil/au/awc/awcgate/milreview/moorhead.pdf)

One assertion that advocates make for a separate Space Force is that space operations are fundamentally different from air operations, just as air operations are fundamentally different from land and sea operations. Therefore, the application of force in space would be significantly different from its application in the air. Waging war in space would require a separate military entity to organize, train, and equip its forces, just as waging war in the air requires a separate air force. Both air and space systems provide elevation above the surface of the earth. Both lack natural barriers and allow three-dimensional motion within their expanses. They are also similar in that military forces can gain advantages by controlling and exploiting these domains. Important differences exist, however. Different physical laws govern air and space. The laws of aerodynamics govern the medium of air, and the laws of astrodynamics govern space. While both media allow forces to pass through them, physical laws alter how they do so. Air forces must take off and return to bases on the earth's surface; space forces would be able to maintain their flight paths almost indefinitely without expending energy. Another difference between air and space is access to and from them. While flight through the air is routine and affordable, space flight is expensive and technically challenging, although this might change in the future. The effects of national sovereignty provide a third difference between air and space. Airspace above a state is that state's sovereign domain. Space, however, is not under any state's sovereignty. Space is more like international waters. Vehicles traveling in space thus operate in an environment that allows overflight of any point on the globe without political and legal regulation. Differences in air and space environments require different air and space forces. Because of air forces' range and speed, airmen have a theater-wide perspective. In combat, the air operations center (AOC) controls and organizes air forces at the theater-level. In contrast, space forces provide a global capability, and the effective employment of forces in space requires a global perspective. Air forces are highly maneuverable. They can choose the time and place of attack, the route of attack, and the direction from which to attack. By contrast, space forces must expend energy to maneuver, cannot make large changes in their predictable flight paths, and carry limited fuel for maneuvering. The differences are so substantial that it logically follows that space forces should be a separate component of military forces, just as air, land, and sea components are.

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And, shortage of educated technical personnel in Air Force space command is destroying our ability to operate effectively in space.

Staats, Lt Col Raymond W. (BA, Syracuse University; MS, Air Force Institute of Technology; PhD, Virginia Polytechnic Institute and State University) is an assistant professor and chief of the Operations Research Division within the Department of Operational Sciences at the Air Force Institute of Technology.& Abeyta, Maj Derek (USAFA; MS, Air Force Institute of Technology; MBA, Webster University) is the C4ISR division chief. Document created: 1 December **05**. Air & Space Power Journal - Winter 2005

According to the Report of the Commission to Assess United States National Security Space Management and Organization, released on 11 January 2001, "the security and well being of the **U**nited **S**tates, its allies and friends depend on the nation's ability to operate in space." The commission concluded that, in order to sustain a level of distinct superiority in space, we must "create and sustain a cadre of space professionals."1 This article focuses on one of the three areas the commission identified as having a high priority in terms of the requirements to reach this goal: education—specifically, the status of formal space education within the United States Air Force as regards its historical development, current status, and future needs. Space-related education, coupled with technical expertise, plays a critical role in developing and sustaining a space cadre. One might well argue, however, that too many current leaders of space organizations do not have the necessary background in technical education. Without leadership to verify or challenge subordinates' recommendations, problem solving often focuses on the short term, thus deferring creative, forward-looking solutions to the next—hopefully more technically knowledgeable—commander.2 The areas in which space professionals work are defined as "all specialties that research, design, develop, acquire, operate, sustain or enhance our space systems including communications, intelligence, maintenance, logistics, weather and a host of others."3 Approximately 25,400 active duty military personnel and civilians as well as 14,000 contractor employees perform these missions, thus earning them the designation space professionals. The space cadre consists of scientists, engineers, program managers, and operators who have the primary responsibility of taking space systems from "concept to deployment," including approximately 7,000 active duty officers and enlisted members as well as 3,000 civilian, Guard, and Reserve personnel. Air Force Space Command (AFSPC) has identified prerequisite space-education, training, experience, and certification requirements for the space cadre.4 However, after more than 22 years of existence, the command still lacks an adequate strategy to ensure that its officer corps possesses the necessary technical expertise, particularly with regard to space-related graduate education.

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Additionally, current US policy of ambivalence toward space risks preemptive attack by other powers

Benjamin S. **Lambeth**, **2003**, (RAND Sen. Staff, Mastering the Ultimate High Ground, Pg. 152-153)

On top of that, as explained in the preceding chapter, there has been for years a pronounced and continuing national disinclination to tamper with the status quo concerning space force- application initiatives and "weaponization." There also remains a persistent absence of national agreement over present and emerging threats to U.S. space-based assets. On this point, in a forceful call for bolder U.S. measures toward acquiring a serious space control capability, space-power advocate Steven Lambakis cited the "awkward absence of a collective, politically sanctioned vision for space," adding that "while space control is viewed as a logical outgrowth of a commitment to freedom of space, it has been neither a mission area that the citizens of the U.S. truly believe in nor one that energizes present U.S. strategic thinking. 1144 The resultant "debate" over U.S. military space policy, he concluded, has been entirely predictable and has turned on decades-old arguments about preserving space as a sanctuary and not generating new instabilities. It has been further aggravated, one might note, by a natural media tendency to sensationalize and to assume the worst, as was evident in the press agitation over the presumed hidden agenda for national missile defense (described in Chapter Four) occasioned by Secretary Rumsfeld's perfunctory announcement in May 2001 of his planned organizational reforms for military space. These facts have invariably made all calls for space force application initiatives and, by association, for even more relatively benign space control measures, both provocative and polarizing. So long as such a disinclination to grapple with the nation's rock-bottom security needs in space persists and the nation continues to adhere to all ambivalent military space strategy, space will remain only a supporting enabler of terrestrial operations. Worse yet, as long as steps toward acquiring effective defensive and offensive space control capabilities continue to be held in check by Political irresolution and Popular indifference, the nation will run an increasing risk of being caught by surprise someday as a result of its space vulnerabilities being exploited by a hostile party-whether or not in a notional "space Pearl Harbor."

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And, their turns are fearmongering - the deployment of space weapons to protect our vital space infrastructure is key to prevent a second Pearl Harbor in space, maintain U.S. leadership, and will not lead to a new arms race or space war. Despite discussion of a new UN treaty, weaponization by Russia and China is inevitable - failure to act carries the greatest risk of conflict.

Peter **Brookes** is a Heritage Foundation senior fellow, June 7, **2005**, ("Militarizing Space," http://www.heritage.org/Press/Commentary/ed060705a.cfm)

The latest hysteria surrounds the Bush administration's soon-to-be-issued National Space Policy — the first NSP update since the Clinton administration's in 1996. Three years in the making, the new doctrine will reportedly permit the development of weapons to protect U.S. satellites. Without having seen the final presidential policy decision, the arms-control fanatics are already condemning the new policy with frantic cries of "arms race," "strategic instability" and "militarizing space." Fretting and fearmongering aside, the fact is that the "final frontier" is critical to our national defense. We'd better make darn sure we maintain our competitive edge there. Space is the ultimate military high ground — and critical to maintaining the supremacy (in communications, reconnaissance and so much else) of our GIs. It doesn't take a rocket scientist to figure out that whoever holds the upper hand there will hold the upper hand on Earth. If we don't maintain our space superiority, others, such as the Chinese and the Russians, will gladly replace us — guaranteed. The "militarization" of space? Already a fact. Hundreds of military-related communications, navigation and intelligence satellites are in orbit, from a number of nations. The question turns on "weaponizing" space — that is, deploying offensive and defensive space weapons that would protect a nation's Earth- and space-based interests and assets or strike Earth-based targets. Such Star Wars-like weapons might include ground- or satellite-based lasers or kinetic-energy weapons able to incapacitate (kill) hostile satellites and ballistic missiles en route to their targets. It might also involve space-based hypervelocity metal rods — "Rods from God" — designed to strike ground targets at 7,200 mph (120 miles per minute) with the strength of a nuclear weapon but without the radioactive fallout. Last month, White House spokesman Scott McClellan told reporters that the Bush NSP actually wasn't considering weaponizing space but would advocate developing means to defend our critical — but now defenseless — space infrastructure from attack. (Left unsaid: R&D on other space systems will surely continue.) Opponents of the new policy clamor that a space arms race will result from even that policy shift: China, Russia, Japan and even the European Union will surely be provoked into following our lead. But if we leave the high ground open, what's to stop others from seizing it? The critics' answer: another U.N. arms control treaty. Arms controllers also argue that space-based weapons are inefficient and expensive relative to conventional weapons. All these arguments are weak — at best. A new weapon system will cause an arms race? It ain't necessarily so. Case in point: For decades, the arms controllers railed against ballistic missile defense, warning that it would grossly destabilize relations with China and Russia and spark an arms race such as the world has never seen. Yet the Bush administration's initial deployment of missile defense hasn't caused an arms race or made relations with Beijing and Moscow any tougher than they already were. It has, however, improved our national security by providing the first protection against ballistic missiles — ever. Space weapons more expensive than conventional weapons? Sure, a satellite costs more than a tank. And a tank costs more than a cavalry horse, a rifle more than a rock. The most expensive weapon is the one that doesn't do the job. What price are the opponents of a more forward-leaning space policy willing to put on U.S. national security? As for the idea of any treaty preventing the deployment of weapons into space . . . well, tell that to North Korea and Iran — nations undeterred by the likes of the Nuclear Non-Proliferation Treaty. More, the current U.N. (draft) treaty to prohibit the weaponization of space was introduced by China and Russia — the two nations most active in space today. Only the naive would argue that Beijing and Moscow wouldn't deploy space weapons today if they could. The treaty is merely their diplomatic gambit to buy time to develop their own programs. That work continues apace. Last year's Pentagon report on Chinese military power says that China, in addition to improving its satellite intelligence and reconnaissance capability, is "clearly working on, and plans to field, ASATs [anti-satellite systems]." Space is critical to American national security. No nation relies more on space than the United States — and our potential enemies know this. Failure to protect our space infrastructure would only invite a Pearl Harbor in space, leaving us deaf, dumb and blind — and at war. Maintaining America's military pre-eminence — in space as on land, at sea and in the air — is a necessity.

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Specifically, China and Russia are major competitors over space and will develop military space power, allowing them to attack U.S. satellites.

Matthew **Mowthorpe**, Phd from University of Hull, The Militarization and Weaponization of Space p.215**, 2004**

The People's Republic of China has developed a considerable military space capability. In particular the development of its communications, photoreconnaissance-in different spectral forms such as synthetic aperture radar, electronic intelligence. and navigation satellites-proffer some military space capabilities. It is also actively considering the development of space weapons, in the form of antisatellite weapons. The ASAT capabilities under examination are direct ascent missiles, groundbased lasers and a parasitic satellite with an explosive charge. The reconnaissance capabilities would enable China to monitor Taiwan's defenses to be used for a possible attack if it does not adhere to the principles China has laid out for Taiwan In relation to its status. In addition, the navigation satellites could be enhanced for use in increasing the accuracy of China's ballistic missile capabilities. The PLA has outlined two missions with respect to military space. The first mission is information support and the second is battlefield combating. The first priority is information support which incorporates intelligence, navigation/positioning, and communications. China has forged a number of international agreements in the realm of space. These are often termed as civilian space ventures, however many of them have dual-use capabilities. To reiterate, the miniaturization satellite technology developed from a British company could be used as part of China's parasitic antisatellite capability. Similarly, the development with Brazil of its CBERS series of satellites assists China in developing photoreconnaissance capabilities. This cooperation has allowed China to develop its military space capabilities considerably quicker than it would have been otherwise able to do so. These international collaborations have enabled China to develop an array of satellites dedicated to military space purposes. The Soviets rigorously developed a co-orbital ASAT attack capability. The ASAT development and testing enabled the Soviet Union to have a reliable operational capability from the mid-1970s. The Soviets tested its ASAT capability on over twenty occasions against target satellites in varying orbits and inclinations and operated numerous attack profiles. The intended targets for this ASAT capability were U.S. and NATO satellites. Since the latter stages of the Cold War and indeed since the collapse of the Soviet Union, Russia has shown some interest in an ASAT capability, of most note being the adaptation of the MIG-31 in an ASAT carrier role. Whether this interest will be developed is dependent upon the perceived threat Russia feels in response to the United States' missile defense and ASAT plans.

And, protection of satellite monitoring capability through effective space militarization is key to deter adversaries and avoid global conflict.

Matthew **Mowthorpe**, Phd from University of Hull, The Militarization and Weaponization of Space p.194, **2004**

The war game was set in 2017 and began with a fictional scenario. A large space-capable "near peer" country (Red) massed its forces near the border of a nation (Brown) which called on the United States and its allies (Blue) for protection. The Blue team found it difficult to intervene due to political and economic complications. There were two parallel games played. The Blue team was equipped with a force that the U.S. Air Force could expect to have in 2017 if it continued on its current programmed course, buying airplanes and weapons and slowly building its space capabilities. The second Blue team was considered a robust force that would be in place if more funds were committed to developing and fielding a strong air and space presence. These two teams were pitted against the Red teams that had the same assets, enabling a comparison to be made between the effectiveness of the programmed or robust Blue forces. One of the lessons learned was the deterrent capabilities of space assets. Adversaries are less likely to mount a surprise attack if they are aware that their movements are being monitored.

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Leadership in space is vital to all aspects of American leadership and economic well-being.

Christopher **Petras**, Chief of Operations Law for United States Space Command, Fall 20**02** (*Journal of Air Law and Commerce*, The Use of Force in Response to Cyber-Attack on Commercial Space Systems—Reexamining "Self-Defense" in Outer Space in Light of the Convergence of U.S. Military and Commercial Space Activities, Pg. 8)

While the phrase "space control capabilities [and] military measures" is arguably a euphemism for "space and terrestrial force," the 1996 policy left the question of the use of force in response to an attack on U.S. space assets awash in verbiage. By the end of the decade, however, the expanded commercial use of space, and the growing dependence of the military on the commercial space sector to provide essential services, gave rise to renewed concern over the vulnerability of the nation's space systems to attack. 81 So, in 1999, DoD promulgated its current space policy, which clarified the issue: Space is a medium like the land, sea, and air within which military activities shall be conducted to achieve U.S. national security objectives. The ability to access and utilize space is a vital national interest because many of the activities conducted in the [*1231] medium are critical to U.S. national security and economic well-being. Ensuring the freedom of space and protecting U.S. national security interests in the medium are priorities for space and space-related activities. U.S. space systems are national property afforded the right of passage through and operations in space without interference, in accordance with [the National Space Policy (1996)]. Purposeful interference with U.S. space systems will be viewed as an infringement on our sovereign rights. The U.S. may take all appropriate self-defense measures, including... the use of force, to respond to such an infringement on U.S. rights. 82Thus, under the new DoD policy, it is now clear that the United States construes the "inherent right of self-defense" as not only allowing the use of military force in response to attacks on the nation's military space systems, but in response to attacks against U.S. commercial interests and investments in space as well. 83

U.S. leadership ensures world stability and the prevention of proliferation, regional conflicts, and global nuclear war - military dominance is key.

Khalilzad '95, U.S. Special envoy to Afghanistan [Zalmay, "Losing the Moment? The United States and The World After the Cold War," *The Washington Quarterly*, pg. 84; Spring 1995]

Under the third option, the United States would seek to retain global leadership and to preclude the rise of a global rival or a return to multipolarity for the indefinite future. On balance, this is the best long-term guiding principle and vision. Such a vision is desirable not as an end in itself, but because a world in which the United States exercises leadership would have tremendous advantages. First, the global environment would be more open and more receptive to American values -- democracy, free markets, and the rule of law. Second, such a world would have a better chance of dealing cooperatively with the world's major problems, such as nuclear proliferation, threats of regional hegemony by renegade states, and low-level conflicts. Finally, U.S. leadership would help preclude the rise of another hostile global rival, enabling the United States and the world to avoid another global cold or hot war and all the attendant dangers, including a global nuclear exchange. U.S. leadership would therefore be more conducive to global stability than a bipolar or a multipolar balance of power system.

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Finally, air power responsibilities are preventing the air force from adequately managing United States military power in space, especially in the area of new space weapons vital to maintain supremacy. The creation of a new United States Space Force (USSF) will streamline operations, provide genuine space expertise, and ensure continued U.S. leadership in space and on Earth.

Taylor **Dinerman**, New York City journalist. Monday, February 27, 20**06** (United States Space Force: sooner rather than later, http://www.thespacereview.com/article/565/1)

It's time to admit that the 2001 decision—in keeping with the recommendations of the second Rumsfeld commission—that made the Air Force the "Executive Agent for Space" has just not worked: not due to any malfeasance or corruption or lack of good will, but simply because the USAF has other priorities. The Air Force is all about airpower. Before World War Two, when it was still the Army Air Corps, its leaders believed that America needed airpower. In the grand scheme of things, they were completely vindicated, and no one more so than Hap Arnold, the Chief of Staff for air from 1939 to 1945. Arnold's vision of a military organization dedicated to constantly developing its fighting edge through the use of science and technology is still one of the USAF's core strengths. The primary manifestation of airpower is air superiority or air supremacy—being able to put your airplanes in the sky over the enemy and preventing him from putting his airplanes over your own forces or even over his own. The ultimate expression of air supremacy is being able to prevent an opponent from flying anywhere above his own homeland. Today, the preferred instrument of this concept is the F-22, by far the best fighting aircraft ever built. The question the Pentagon and Congress are trying to answer is whether future air superiority campaigns be hard—that is, conducted with a force of 180 F-22s—or easy, conducted with more than 350? The Air Force (and the Army) also needs more than the 180 C-17s planned for in the recently released Quadrennial Defense Review (QDR), as well as more money to develop the new F-35 and the next generation of long-range strike systems. These last will most emphatically not include space weapons. The air part of the Air Force has a full plate and it is hardly surprising that, at a time when they are being asked to do more with less, space systems are, if not neglected, not given the detailed attention other mission elements are getting. It may be argued that while the Navy tends to neglect mine warfare, no one talks about taking this mission away from them and setting up a separate Mine Warfare Force. So why should space be any different? Perhaps America's space warriors should just accept their fate and learn to live with their relatively low status. If it were just a question of ego, such a situation might be acceptable. Sadly, too many mistakes have been made, too many programs are in deep trouble, and things show little sign of improvement. The Space Based Infrared System (SBIRS) is obviously the most visible symbol of the failure of the current institutional set up. Even though its problems go back to its beginnings in the mid-1990s (getting the US Forest Service involved was questionable, to put it mildly) the changes made in 2001 have done nothing to fix it or the other troubled space programs. Part of the problem is the long-standing failure of acquisition reform. Today's situation is so bad that the price of a $2 billion system can literally double in a matter of minutes just by letting a few government lawyers into the room where the project managers are meeting. Fixing these laws and regulations should be a high priority. America cannot expect to effectively fight a war using peacetime rules. The most important reason the US Department of Defense needs a Space Force is that space has different properties from land, sea, and air environments found on Earth. The "terrain" of the Earth-Moon system combines orbital dynamics and gravitational forces in constant and sometimes subtle interaction. Senior officers, no matter how sincere, whose formative experiences consist of flying machines that are supported by the relationship between propulsion and air pressure cannot be expected to instinctively understand the nature of space warfare. The small space cadre that is slowly coming into existence will, without doubt, never produce an Air Force Chief of Staff. A new space service, with its own promotion ladder and its own training and doctrine development system, will insure that when the Joint Chiefs and their civilian superiors meet to plan an operation, someone with four stars will be there to make sure that the capabilities and limitations of US and enemy space forces are taken into account. Military space expertise is becoming more widespread than ever and even the least sophisticated future foe will know enough to try and avoid being detected or targeted by US or allied satellites. With its own budget, the space service will be able to concentrate on making sure that all the other services have access to the best space-based support possible. The Army, Navy, Marines, Coast Guard, and others who use America's military space assets will not have to worry about institutional favoritism, although it should be pointed out that, since 2001, there has not been any evidence that the USAF has abused its authority to the detriment of the other services. Instead, the problem is that, within the Air Force, there has not been enough top-level attention paid to the needs of space operations. A new USSF should not get control of everything that now comes under the heading of "Air Force Space." For example, the ICBM force should continue to be controlled by the USAF. In contrast, the new organization should take control of the space-based elements of all missile defense systems, including tactical ones. Missile warning and tracking is a global requirement that can best be done from space. SBIRS and its successors will need to be controlled by space warfare experts controlling networks that can instantly pass information on to those who can shoot the enemy target down. The Space Force will, eventually, control space-based anti-

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Taylor **Dinerman**, New York City journalist. Monday, February 27, 20**06** (United States Space Force: sooner rather than later, http://www.thespacereview.com/article/565/1)

ballistic missile weapons, anti-satellite weapons, satellite defense weapons and space-to-Earth weapons when US policy makers decide that these systems are needed. The new force will also get control of the GPS and military communications networks and of the space access infrastructure. This will give them control of the Delta 4, Atlas 5, and other rockets. It will be up to the new force to continue the recent record of safe and successful military space launch operations. The Space Force will have the responsibility for developing new launch systems, including laying the basis for a future reusable launch vehicle (RLV). Every major, and many smaller, joint headquarters will have a representative of the USSF present and with a legitimate seat at the table. In order to show their commitment to support the troops who carry the greatest burden, the USSF should, on a day-to-day basis, wear fatigues rather than flight suits. This will also make it plain to members of the Army, Navy, and Marines who will be joining the new organization that it is not just another version of the Air Force. It will be able to make its acquisition decisions based on the need to keep a healthy American space industry in existence, rather than catering to the needs of the aerospace industry. This should allow for a new set of corporate players to get involved alongside the older large contractors. As the Space Force proves itself, Congress may be expected to show a greater level of confidence and allow needed systems, such as Space Radar and the TSAT communications satellite program, to be fully funded. Leaders inside the Pentagon keep saying that space is the critical backbone of network-centric warfare. The evidence shows that, without space, American global military superiority would not be anywhere near what it is today. Our enemies know this and are working hard to find new ways to damage and degrade US space superiority. To counter this, and to give America a new set of grand strategic options, a new space force is needed: not immediately, but within the next five or ten years. Future presidential candidates, if they want to show they are serious about national security, should consider making this reform part of their platform.

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Contention 2 is Space Exploration:

First, e**ffective space militarization key to developing technology used for space exploration in the civilian and commercial arena.**

Kevin **Haggerty** teaches at the University of Alberta **and** Richard **Ericson** at Oxford University. The summary is taken for their article in Militarizing the American Criminal Justice System: The Changing Roles of the Armed Forces and the Police, edited by Peter Kraska, Boston: **2001**, Northeastern University Press, pp. 43-64, http://crpr.icaap.org/issues/issue1/haggarty-ericson.html

Since World War II the defining attribute of the U.S. military has been its commitment to using advanced technology for military purposes. To that end it has funded any number of new technologies, academic institutions and individual scientists. Few technologies are now developed without being scrutinized for potential military applications. The range of technologies developed for military purposes and to military specifications is extensive and, very importantly, is not confined to lethal technologies. Hence, assorted sensors, visualization devices, electronics, communication systems, as well as nuclear energy, computers and space exploration can all be conceived of as military technologies by virtue of their genesis in military programs. These technologies, however, do not remain confined to their military context. Most eventually move into wider society through a 'trickle down' process of dispersion, where corporate interests work to develop potential civilian applications of technologies with a military origin. The computer provides a paradigmatic example of such a process, as prior to World War II there was little research on computing machines. The war effort galvanized efforts to develop computers, the first of which were used for assorted military purposes. In the ensuing years refinements in computational abilities have ushered in a new military ideology that emphasizes the use of information. Computers, however, have transcended their military origins, and are now a generalized technology capable of any number of different non-martial applications.

And, space exploration is key to human survival for several reasons: first, a supervolcanoe eruption is inevitable.

Robert **Britt**, Life Science Senior Writer, March 8, 20**05** (MSNBC, Super Volcanoes Will Chill the World Someday, http://www.msnbc.msn.com/id/7129908/)

"Although very rare, these events are inevitable, and at some point in the future humans will be faced with dealing with and surviving a super eruption," Stephen Sparks of the University of Bristol told LiveScience in advance of Tuesday's announcement.

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This causes nuclear winter and extinction.

Maarten **Keulemans,** Scientific Journalist, 20**03** (Exit Mundi, Super Volcanoes, http://www.exitmundi.nl/exitmundi.htm)

So, we'd run away, right? Hmm. If only it was that easy. An even bigger problem than the lava itself is the ash. 64,000 Years ago, a supervolcano made a mess of what is now the US. Of the current 50 states, 21 were covered with a layer of ash, at some places was over twenty meters thick! Well, who cares, you might think - we'd just dust it away. But it isn't that simple. Volcanic ash is not like the ash you find on the barbecue: it is made of tiny pieces of rock. If it falls on your roof, your house can collapse under it's weight. If it gets into contact with cars or airplanes, they will break down or crash. Even worse, if you inhale it, the ash will mix with the liquids in your lungs and form a cement-like substance. You'll literally drown in conrete! So you'd take a boat to another continent, right? Wrong. Apart from lava, volcanoes spew out a deadly brew of toxic chemicals. There are sulphurous gases that turn all rainfall into a blistering downpour of pure sulphuric acid for years to come. There are all kinds of chlorine-bearing compounds, that break down enough of the ozone layer to turn the Sun into a real killer. There's carbon dioxide, the greenhouse gas that not only nibbles at the ozone layer, but also causes long-term global warming. And last but not least, there's soot. A super eruption will darken the Sun, and gradually push the Earth into nuclear winter. For many years, or even centuries, we will have to survive in darkness and cold. Ok, we may be smart enough to escape from the lava and the ash, dodge the acid rains, survive the nuclear winter and protect ourselves against the killer solar radiation afterwards. But plants and animals definitely are not. We'd find ourselves in an increasingly empty world, as one species after another goes extinct. In the end, even the toughest survivalist would starve to death.

And, there are multiple other scenarios for extinction if we do not get off the rock:

Sylvia **Hui**, AP, June 13, **2006,** The Associated Press, information from Stephen Hawking, a world renowned scientist, http://apnews.myway.com/article/20060613/D8I7ADB81.html

The survival of the human race depends on its ability to find new homes elsewhere in the universe because there's an increasing risk that a disaster will destroy the Earth, world-renowned scientist Stephen Hawking said Tuesday.

The British astrophysicist told a news conference in Hong Kong that humans could have a permanent base on the moon in 20 years and a colony on Mars in the next 40 years.

"We won't find anywhere as nice as Earth unless we go to another star system," added Hawking, who arrived to a rock star's welcome Monday. Tickets for his lecture planned for Wednesday were sold out.

He added that if humans can avoid killing themselves in the next 100 years, they should have space settlements that can continue without support from Earth.

"It is important for the human race to spread out into space for the survival of the species," Hawking said. "Life on Earth is at the ever-increasing risk of being wiped out by a disaster, such as sudden global warming, nuclear war, a genetically engineered virus or other dangers we have not yet thought of."

The 64-year-old scientist - author of the global best seller "A Brief History of Time" - is wheelchair-bound and communicates with the help of a computer because he suffers from a neurological disorder called amyotrophic lateral sclerosis, or ALS.

Hawking said he's teaming up with his daughter to write a children's book about the universe, aimed at the same age range as the Harry Potter books.

"It is a story for children, which explains the wonders of the universe," his daughter, Lucy, added.

They didn't provide other details.

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Finally, expansion into space outweighs all other concerns: failure to do so will doom the universe to perpetual lifelessness.

SAVAGE 93 (Marshall T. Savage, president of the First Millenial Foundation, THE MILLENIAL PROJECT, 1993, p. 1)

Now is the watershed of Cosmic history. We stand at the threshold of the New Millennium. Behind us yawn the chasms of the primordial past, when this universe was a dead and silent place; before us rise the broad sunlit uplands of a living cosmos. In the next few galactic seconds, the fate of the universe will be decided. Life__the ultimate experiment__will either explode into space and engulf the star_clouds in a fire storm of children, trees, and butterfly wings; or Life will fail, fizzle, and gutter out, leaving the universe shrouded forever in impenetrable blankness, devoid of hope.

Teetering here on the fulcrum of destiny stands our own bemused species. The future of the universe hinges on what we do next. If we take up the sacred fire, and stride forth into space as the torchbearers of Life, this universe will be aborning. If we carry the green fire_brand from star to star, and ignite around each a conflagration of vitality, we can trigger a Universal metamorphosis. Because of us, the barren dusts of a million billion worlds will coil up into the pulsing magic forms of animate matter. Because of us, landscapes of radiation blasted waste, will be miraculously transmuted: Slag will become soil, grass will sprout, flowers will bloom, and forests will spring up in once sterile places. Ice, hard as iron, will melt and trickle into pools where starfish, anemones, and seashells dwell__a whole frozen universe will thaw and transmogrify, from howling desolation to blossoming paradise. Dust into Life; the very alchemy of God.

If we deny our awesome challenge; turn our backs on the living universe, and forsake our cosmic destiny, we will commit a crime of unutterable magnitude. (Hu)mankind alone has the power to carry out this fundamental change in the universe. Our failure would lead to consequences unthinkable. This is perhaps the first and only chance the universe will ever have to awaken from its long night and live. We are the caretakers of this delicate spark of Life. To let it flicker and die through ignorance, neglect, or lack of imagination is a horror too great to contemplate.

Inherency/Harms

Funding for spaceflight

Lengthy congressional investigations are being used to avoid funding space exploration.

Molly K. Macauley, Senior Fellow, Resources for the Future, Washington, DC, ARTICLE: SYMPOSIUM: ISSUES IN SPACE LAW: Flying in the Face of Uncertainty: Human Risk in Space Activities, Copyright (c) 2005 The University of ChicagoChicago Journal of International LawSummer, **2005**, lexis

Balancing manned and robotic exploration -- based in part on a comparison of human risk -- is only part of a decision about future space activities. But the current generation of decisionmakers, including many in Congress and at NASA, has not been daring about flying in the face of such perils. Some observers assert that reasons for lengthy Congressional investigations of space accidents extend beyond accident investigation and are, instead, the agenda of political actors intent on decreasing the funding of space exploration. [24] Whatever the reasons for delay before flight is resumed, these hold-ups run counter to proposed timescales for sending humans to the moon or to Mars. While spaceflight accidents may never be taken in the stride of auto or aviation accidents, the pursuit of human spaceflight requires greater acceptance of the outcome that lives will be lost. The early days of aviation and the contemporary model of testing experimental military aircraft offer paradigms that may be useful in framing how to strike the balance among risk responses for policymakers.'

Asteroid defence

No asteroid defense in the status quo

Evan R. **Seamone**, J.D., University of Iowa College of Law; M.P.P. and B.A., University of California, **2004** (Georgetown International Environmental Law Review, "The Precautionary Principle as the Law of Planetary Defense: Achieving the Mandate to Defend the Earth Against Asteroid and Comet Impacts While There is Still Time," lexis)

As it now stands, no agency has been explicitly designated to take the lead in planetary defense measures at the international level. In the United States, while NASA currently has responsibility for tracking Near-Earth Orbiting asteroids (NEOs), it is not authorized to deploy nuclear devices or evacuate populations. In other words, the mission of NASA is heavily dependent on research rather than operational activities. Similarly, no technical guidelines exist to coordinate the efforts of the multiple agencies that would be forced to respond to asteroid and comet impacts. At a minimum, the precautionary principle requires that governments institute very rudimentary interventions in protecting the planet. While effective planetary protection efforts will require the participation of different nations and their own respective agencies, the precautionary principle calls for a single center to coordinate activities of different organizations. One example of such an organization is the Northeastern Forest Fire Protection Commission, which coordinates activities of various firefighting organizations in parts of the United States and Canada by developing regulations and providing necessary guidance.

Air Force Controls Now

The Air Force maintains full control of military space operations

Savit et al, counsel, Blank Rome Comisky & McCauley LLP, **Summer 2002** (PUBLIC INTERNATIONAL LAW: Aviation and Aerospace: Law and Policy Developments The International Lawyer Summer, 2002, lexis)

In addition to fortifying the Air Force Space Command in Colorado Springs, Colorado, Rumsfeld also announced his intent to place a four-star general in charge of designing and executing space programs and operations. n48 The restructuring consolidated all military space programs into two inter-locking commands. The Air Force was given full "responsibility to organize, train and equip for prompt and sustained offensive and defensive space operations." n49 The Defense Advanced Research Projects Agency (DARPA) was tasked with undertaking "research and demonstration of innovative space technologies and systems for dedicated military missions." n50

Space Commission Doesn't Solve

The Space Comission Report did not solve—funding and recruitment key

Benjamin S Lambeth, 2003(Rand Sen. Staff. Mastering the Ultimate High Ground, 130)

Already, the Air Force leadership has taken the first steps toward realizing the promise held out by the Space Commission. That leadership has not only willingly but enthusiastically accepted its assigned role as executive agent for military space, thanks to what Under Secretary of the Air Force Teets recently described as "some remarkable changes made in the last year to refine and improve the way we organize space capabilities and execute space activities for national security purposes. "7 As a result, it has gained the formal recognition as the nation's military space steward that accompanies that role. With most of the bureaucratic and structural concerns described in Chapter Four now resolved, at least for the near term, the Air Force faces a clear horizon with respect to next steps in implementation. Five pressing space-related issues remain outstanding and in need of focused attention. They entail continuing with the operational integration of space with the three terrestrial warfighting mediums while ensuring the organizational differentiation of space from Air Force air; effectively wielding the Air Force's newly granted military space executive-agent status; realizing a DoD-wide budget category for space which imparts transparency to how much money and manpower are going into space each year and for what; achieving signal progress toward fielding a meaningful space control capability, while decoupling that progress cleanly from any perceived taint of force-application involvement; and making further progress toward developing and nurturing a cadre of skilled space professionals within the Air Force ready and able to meet the nation's military space needs in the coming decade and beyond.

Space Commission recommendations are irrelevant—it's not binding

Benjamin S **Lambeth, 2003**(Rand Sen. Staff. Mastering the Ultimate High Ground, 141-2)

Although these program elements remain, as before, service-specific, their aggregation in this new and unprecedented manner for all to comprehend in a single look should give the space executive agent an unprecedented ability to identify cross-service program overlap and redundancies. That in itself represents a major step in the right direction toward a more rational management of DoD spending on military space. That said, however, irrespective of how right-minded and informative it may sound in and of itself, a DoD report to Congress does not constitute guidance with binding authority over DoD. That report most definitely offered at least the beginnings of a good and workable definition of what a space MFP, whether called "virtual" or something else, should include by way of programs and related space activity. However, it must be promulgated as formal, top-down OSD guidance to the services with all due specificity if it is to be on point with respect to needed improvements in DoD-wide space funds management. One can only hope that the terms of reference in DoD's report to Congress describing the "virtual" space MFP will survive the internal DoD coordination and staffing process. For as now written, they offer real promise of putting teeth into the Space Commission's recommendations with respect to military space budget accounting. This too may be a topic that the Under Secretary of the Air Force may wish to pursue further as a matter of special priority in the course of testing his newly assigned executive-agent authority.

Education

Very few civilian schools allow for space education, particularly in the terms of the armed forces

Lt Col Raymond W. **Staats**, PhD, USAF **and** Maj Derek A. **Abeyta**, USAF Dec 1, 20**05** Technical Education for Air Force Space Professionals
Only a very few civilian institutions offer graduate-level space-operations degrees, typically in space studies, air and space studies, or space science: University of Colorado–Colorado Springs, Webster University, University of North Dakota, George Washington University, and Johns Hopkins University. Developed in the mid-1980s, most of these programs sought to attract new space-operations officers pursuing a degree related to their careers. Additionally, schools such as MIT, Purdue, Ohio State, and UCLA offer aeronautical/-astronautical engineering degrees.

Air Force Education

Shortage of educated technical personnel in Air Force space command destroying our ability to operate effectively in space.

Staats, Lt Col Raymond W. (BA, Syracuse University; MS, Air Force Institute of Technology; PhD, Virginia Polytechnic Institute and State University) is an assistant professor and chief of the Operations Research Division within the Department of Operational Sciences at the Air Force Institute of Technology.& Abeyta, Maj Derek (USAFA; MS, Air Force Institute of Technology; MBA, Webster University) is the C4ISR division chief. Document created: 1 December **05**. Air & Space Power Journal - Winter 2005

According to the Report of the Commission to Assess United States National Security Space Management and Organization, released on 11 January 2001, "the security and well being of the **U**nited **S**tates, its allies and friends depend on the nation's ability to operate in space." The commission concluded that, in order to sustain a level of distinct superiority in space, we must "create and sustain a cadre of space professionals."1 This article focuses on one of the three areas the commission identified as having a high priority in terms of the requirements to reach this goal: education—specifically, the status of formal space education within the United States Air Force as regards its historical development, current status, and future needs. Space-related education, coupled with technical expertise, plays a critical role in developing and sustaining a space cadre. One might well argue, however, that too many current leaders of space organizations do not have the necessary background in technical education. Without leadership to verify or challenge subordinates' recommendations, problem solving often focuses on the short term, thus deferring creative, forward-looking solutions to the next—hopefully more technically knowledgeable—commander.2 The areas in which space professionals work are defined as "all specialties that research, design, develop, acquire, operate, sustain or enhance our space systems including communications, intelligence, maintenance, logistics, weather and a host of others."3 Approximately 25,400 active duty military personnel and civilians as well as 14,000 contractor employees perform these missions, thus earning them the designation space professionals. The space cadre consists of scientists, engineers, program managers, and operators who have the primary responsibility of taking space systems from "concept to deployment," including approximately 7,000 active duty officers and enlisted members as well as 3,000 civilian, Guard, and Reserve personnel. Air Force Space Command (AFSPC) has identified prerequisite space-education, training, experience, and certification requirements for the space cadre.4 However, after more than 22 years of existence, the command still lacks an adequate strategy to ensure that its officer corps possesses the necessary technical expertise, particularly with regard to space-related graduate education.

Air Force lacks qualified personnel to lead space operations.

Lambeth, Benjamin S.: RAND researcher. Fall 20**03**(RAND. Mastering The Ultimate High Ground. Page. 79-80).

The report offered both an assessment of the nation's institutional deficiencies with respect to military space and some recommendations to ameliorate the practical impact of those shortcomings. In the assessment portion of the report, the commissioners spotlighted three interconnected issue areas: cadre-building, funding, and organization. As for building, growing, and sustaining a cadre of truly space-competent professionals, it noted pointedly that unlike the combat aviation and submarine career fields, whose leaders have spent upward of 90 percent of their service careers in those fields, fewer than 20 percent of the general officers in key space positions have space career backgrounds. Most of the others have typically spent less than three years in space or space-related assignments. As a result, the report observed, today's most senior Air Force space leaders spend most of their time learning about space rather than actually leading. This, the commissioners concluded, was a serious problem in need of fixing.

Air Force Leadership

Lack of space leadership within the air force destroying the ability to recruit and train effective space military personnel.

Douglass, John President and CEO, Aerospace Industries
Committee on House Armed Services Subcommittee on Strategic Forces
July 22, **2004** l/n

AIA, along with the Departments of Defense, Labor, and Commerce, as well as a number of state employment agencies, have undertaken a variety of initiatives to revitalize the aerospace workforce. In the Pentagon, Department-wide human capital programs will prove necessary to surmounting the single largest barrier to the creation of a reliable cadre of **military space professionals:** a lack of leadership expertise. The Rumsfeld Commission's study of the 150 top DOD space operational positions revealed that less than 20 percent of the flag and general officers who hold these appointments had space career backgrounds. This trend disrupts the process of improving the performance of **military** space organizations through continuous, high-level guidance on strategy, execution, resource investments, and recruitment.

The bottom line is that if the Air Force fails to provide a clear and achievable career path to leadership positions for space professionals in its corps of general officers, the Service should and will lose its space-related missions. In light of this problem, AIA strongly supports the Pentagon's ongoing effort, recommended by the Rumsfeld Commission and the GAO, to develop a National Security Space (NSS) human capital strategy.

DOD Behind

The DOD has failed in implementing necessary policies for the improvement of space command operations because of conflicting priorities within the existing armed service structure.

GAO 1-1-06 ("Defense Space Activities: Management and Guidance Performance Measures Needed to Develop Personnel." General Accounting Office Reports & Testimony, l/n)

Since the January 2001 Space Commission report highlighted DOD's need to develop and maintain a space cadre, DOD has made limited progress on departmentwide space cadre actions. DOD has fallen behind its planned schedule for implementing the February 2004 space human capital strategy. In December 2004, DOD issued an implementation plan for its strategy that identified 30 tasks related to space personnel management, education and training, and critical space positions. Most of these tasks were scheduled to be completed by November 2005, and some had completion dates that were not determined. Nine tasks were scheduled for completion by March 2005. As of June 2005, DOD had completed only 3 of these 9 tasks, as well as 1 other task that did not have an estimated completion date. DOD has not completed 6 of the 9 tasks scheduled for completion in March 2005, although it has taken actions on some of them. Progress on defensewide space cadre actions has been delayed for two reasons. First, defensewide space cadre leadership has not always been proactive because the DOD Executive Agent for Space had varying management priorities and departed in March 2005, which contributed to delays in implementing the space human capital strategy. Implementation of defensewide space cadre actions was initially not one of the highest priorities of the Executive Agent, who concentrated on addressing issues related to major space acquisition programs; however, in 2004, the Executive Agent made the space cadre a higher priority. Second, DOD officials attributed delays to challenges, such as the need to build consensus on defensewide space cadre actions among the services, which have differing space roles and cultures, and the difficulties in making timely changes in large organizations.

DOD's current approach toward space hegemony fails because of the lack of a coordinated managerial approach.

GAO 1-1-06 ("Defense Space Activities: Management and Guidance Performance Measures Needed to Develop Personnel." General Accounting Office Reports & Testimony, l/n)

Although DOD has developed a space human capital strategy and implementation plan to address space cadre issues, DOD's management approach for the department wide space cadre is inconsistent with a results-oriented management approach in two areas. First, there is no detailed DOD guidance for providing accountability by institutionalizing space cadre responsibilities and establishing a structure for a board and working groups to ensure that space cadre development and management functions continue to be performed. Second, DOD has not developed performance measures and an evaluation plan that DOD and Congress could use to assess space cadre professional development. As a result of the lack of a complete management approach, DOD may not be able to fully address the concern of the Space Commission that it lacked a strong military space culture that includes focused career development and education and training.

Inefficiency/Cost

Shortage of space experts leads to extra cost and bad performance

Katherine V. **Schinasi, US GAO, June 2, 2003(**Military Space Operations: Common Problems and Their Effects on Satellite and Related Acquisitions p.9) http://www.gao.gov

Several factors contributed to cost and schedule overruns and performance shortfalls. First, in the early phases of the AEHF program, DOD substantially and frequently altered requirements. Although considered necessary, many changes were substantial, leading to cost increases of hundreds of millions of dollars because they required major design modifications. Second, based on a satellite constellation gap caused by the failure of a Milstar satellite, DOD decided to accelerate its plans to build the AEHF satellites. The contractors proposed, and DOD accepted, a high risk schedule that turned out to be overly optimistic and highly compressed-leaving little room for error and depending on a chain of events taking place at certain times. Substantial delays occurred when some events did not occur on time. DOD decided to take this approach on the grounds it offered a chance to meet unmet warfighter requirements caused by the loss of the Milstar satellite. Third, at the time DOD decided to accelerate the program, it did not have the funding needed to support the activities and the manpower needed to design and build the satellites quicker. The lack of funding also contributed to schedule delays, which in turn, caused more cost increases.

Solvency

Recruitment and Education

Increased recruitment and education of space personnel key to U.S. space dominance.

Report of the Commission to Assess United States National Security Space Management and Organization Donald H. **Rumsfeld**, Chariman 9, Feb **2001**

Finally, investment in science and technology resources—not just facilities, but people—is essential if the U.S. is to remain the world's leading space-faring nation. The U.S. Government needs to play an active, deliberate role in expanding and deepening the pool of military and civilian talent in science, engineering and systems operations that the nation will need. The government also needs to sustain its investment in enabling and breakthrough technologies in order to maintain its leadership in space.

Recruitment and training of space personnel into the armed forces solves.

Lt Col J. Kevin **McLaughlin**, Space Commission Staff Member, **2001**, http://fas.org/spp/eprint/article02.html

The U.S. has been the world leader in space since the early 1960s. However, the nation cannot rest upon the successes of the past 40 years to ensure success in the future. A forward leaning vision for space and national leadership will be an important element of our success in the coming decades and will set the stage to ensure we develop space capabilities to deter threats against and defend U.S. national interests. Without a cadre of capable and dedicated space professionals, progress will remain slow. However, the Department of Defense in general and the U.S. Air Force in particular will play the most significant role. They must aggressively develop a space culture to ensure leaders at all levels are developed to lead our space organizations. Only with these actions will the success of the U.S. national security space program be ensured in the coming decades.

Recruitment and Education – Strong Military Space Culture

Lack of a strong DOD military space culture is retarding its vital recruitment and education efforts.

Katherine V. **Schinasi**, **, US GAO, June 2, 2003(**Military Space Operations: Common Problems and Their Effects on Satellite and Related Acquisitions, p.7) http://www.gao.gov

Air Force officials also cited challenges related to DOD's space workforce. In 2001, a congressionally chartered commission looking at space issues, known as the Space Commission, noted that from its inception the defense space program has benefited from world-class scientists, engineers, and operators, but now many experienced personnel are retiring and recruitment and retention of qualified space personnel is a problem. Further, the commission concluded that DOD does not have the strong military space culture—including focused career development and education and training—it needs to create and maintain a highly trained and experienced cadre of space professionals who can master highly complex technology as well as develop new concepts of operation for offensive and defensive space operations.

Space Force – must treat space as separate theature

Must treat space as a theatre just like the land, air or sea.

Hayes Peter, cant find any info about him. someone plz do he has 150 good pages 2002 (INNS Official paper 42, United States Military Space: Into the Twenty First Century)

This permits U.S. leaders to manage even distant crises with fewer forces because those forces can respond quickly and operate effectively over longer ranges. Because of space capabilities, the U.S. is better able to sustain and extend deterrence to its allies and friends in our highly complex international environment. Space is not simply a place from which information is acquired and transmitted or through which objects pass. It is a medium much the same as air, land or sea. In the coming period, the U.S. will conduct operations to, from, in and through space in support of its national interests both on earth and in space. As with national capabilities in the air, on land and at sea, the U.S. must have the capabilities to defend its space assets against hostile acts and to negate the hostile use of space against U.S. interests.

Solvency—space corps

Creation of a new branch of the military solves best—it allows specialization of space experts and will boost Air Force funding

Bob **Smith**, senator, **1999** (Air Power Journal, The Challenge of Space Power, pg. 7)

Ultimately—if the Air Force cannot or will not embrace space power and if the Special Operations Command model does not trans-late—we in Congress will have to establish an entirely new service. This may sound dramatic, but it is an increasingly real option. As I have tried to convey, I want us to dominate space—and frankly, I am less concerned with which service does it than I am committed to get ting it done. This view is increasingly shared by my colleagues. Creating a new military service to exploit a new medium is not without precedent. At the close of World War I, the Army General Staff viewed military aviation as a servant of ground forces and opposed the development of a new service that would conduct a new set of roles and missions. Senior officers with lit-tle or no operational experience were chosen to guide the development of the new aviation technologies, roles, and missions. Ground officers controlled promotion of aviation offi-cers. The General Staff refused to fund acquisition at levels needed by aviators. The vast majority of Army officers were ignorant of—and indifferent to—disparities between US and foreign development of airpower. The Army exiled or forced into retirement its internal critics. By any measure, aviation had an inferior status within the Army. As a result, advocates of new roles and missions for aviation, such as Billy Mitchell, sought organizational independence to implement their ideas. The result was the creation by Congress of the Army Air Corps (1926) and, later, the United States Air Force (1947). A Space Force would put the same bureau-cratic and political muscle behind space mis-sions that the Army, Navy, and Air Force flex in theirs today. A separate service would allow space power to compete for funding within the entire defense budget, lessening the some-what unfair pressure on the Air Force to make most of the trade-offs and protecting space-power programs from being raided by more popular and well-established programs. A separate service would create an incentive for people to develop needed new skills to oper-ate in space and a promotion pathway to re-tain those people. Further, a separate service would rationalize the division of labor among the services—and consolidate those tasks that re quire specialized knowledge, such as mis-silery and space—so that this specialized knowledge could be applied more effectively. I have been a member of Congress for 14 years—long enough to learn that, very often, an organized advocate equals political power and that political power gets the resources. We may not like this—and any handful of us might be able to sit down and divide things up better—but that is not how the American political system works. I'd bet that—in a DOD comprised of four service departments—a Space Force would get a fair share. This is a crude method, but it is one way to ensure that space power gets resources.

Creation of Space Corps allows the US to maintain military preeminence

Karl **Grossman**, Prof. of Journalism, April **2001** (Cover Action Quarterly, Space Corps, http://www.thirdworld traveler.com/Pentagon_military/Space_Corps.html)

It is "possible to project power through and from space in response to events anywhere in the world," it stresses. "Unlike weapons from aircraft, land forces or ships, space missions initiated from earth or space could be carried out with little transit, information or weather delay. Having this capability would give the U.S. a much stronger deterrent and, in a conflict, an extraordinary military advantage." The Commission recommends a transition of the U.S. Space Command, established by the Pentagon in 1985 to coordinate Air Force, Army and Navy space forces, to a "Space Corps." This Space Corps would function as a quasi-independent military arm Like the Marine Corps, and possibly "transition" to a fully separate "Space Department"-on par with the Army, Navy and Air Force-several years hence.

Solvency—space corps

Independent space corps prevents bureaucratic inertia and solves best for specialization

Bob **Smith**, senator, **1999** (Air Power Journal, The Challenge of Space Power, http://www.airpower.maxwell.af.mil/airchronicles/apj/apj99/spr99/smith.html)

First, we must foster a space-power culture. We must create an environment in which revolutionary thinking about space power is not only accepted but also rewarded. We should strive to re-create for space power the type of intellectual environment that Gen Henry "Hap" Arnold created for airpower in the wake of World War II. We simply cannot allow a blanket of political correctness and bureaucratic inertia to smother those people who would offer us the most innovative and revolutionary visions for exploiting space. The emergence of a real space-power force will require the crea-tion of a highly skilled, dedicated cadre of space warriors clearly focused on space-power applications—not merely on helping air, sea, and ground units do their job better.

Space Corps best—solves for budgetary and institutional limits of the Air Force

Philip **Gold**, former Marine Corps intelligence agent, December **2000** (Policy Review Online, The Essentials of Space Exploration, http://www.policyreview.org/dec00/gold.html)

Space Force. As presently constituted, the Air Force cannot effectively maintain and enhance U.S. space supremacy — that is, the ability to exploit freely and protect space-based systems while denying the use of space to others, if necessary. Treaties and other restrictions on these activities need to be revisited, but the internal difficulties are budgetary, institutional, and cultural. From the beginning, the Air Force has been a pilot-dominated service; missilery and satellites have never provided fast-track careers. Moreover, though much of what the Air Force does in space benefits the other services, space appropriations come, for the most part, out of the Air Force share of the budget. In recent years, there has been considerable official rhetoric about the need for cultural change, starting with basic officer training, and about evolving into an "air and space," thence to a "space and air" service. Despite such rhetoric and the ubiquitous misnomer "aerospace" (air and space are different realms with utterly different requirements), it seems unlikely. So unlikely that, in 1999, Congress chartered a Space Commission to report in 2001 on possible alternatives. One of the commission's possible (perhaps even likely) recommendations might be the establishment within the Air Force of a separate Space Corps, with its own budget line item and ample career opportunities. Over decades, this Space Corps should evolve into a separate Space Service within the Department of the Air Force, as the Marine Corps exists within the Navy Department. The Air Force itself should make a transition as swiftly and prudently as possible into an unmanned force, while maintaining a world-class-plus manned force through the next two or three decades. Funding here must be a top priority. Air and space supremacy must never be lost.

Only a separate Space Force can ensure US space hegemony and readiness.

Richard **Moorehead**, U.S. Army Major, July **2004** (Military Review, Will We Need a Space Force?, http://www.au.af.mil/au/awc/awcgate/milreview/moorhead.pdf)

War in space is inevitable. The technological and financial constraints that limit man's ability to place weapons in space are only temporary. The full development and exploitation of space will take time. Because men will eventually find ways to fight in space, a vigorous space warfare capability is necessary to protect U.S. national interests. Space power can only reach its full potential through an independent space force, free from control by land, sea, and air commanders, led by space commanders possessing specialized expertise.

Solvency—space corps

Differences in missions warrant separation of air and space forces.

Richard **Moorehead**, U.S. Army Major, July **2004** (Military Review, Will We Need a Space Force?, http://www.au.af.mil/au/awc/awcgate/milreview/moorhead.pdf)

One assertion that advocates make for a separate Space Force is that space operations are fundamentally different from air operations, just as air operations are fundamentally different from land and sea operations. Therefore, the application of force in space would be significantly different from its application in the air. Waging war in space would require a separate military entity to organize, train, and equip its forces, just as waging war in the air requires a separate air force. Both air and space systems provide elevation above the surface of the earth. Both lack natural barriers and allow three-dimensional motion within their expanses. They are also similar in that military forces can gain advantages by controlling and exploiting these domains. Important differences exist, however. Different physical laws govern air and space. The laws of aerodynamics govern the medium of air, and the laws of astrodynamics govern space. While both media allow forces to pass through them, physical laws alter how they do so. Air forces must take off and return to bases on the earth's surface; space forces would be able to maintain their flight paths almost indefinitely without expending energy. Another difference between air and space is access to and from them. While flight through the air is routine and affordable, space flight is expensive and technically challenging, although this might change in the future. The effects of national sovereignty provide a third difference between air and space. Airspace above a state is that state's sovereign domain. Space, however, is not under any state's sovereignty. Space is more like international waters. Vehicles traveling in space thus operate in an environment that allows overflight of any point on the globe without political and legal regulation. Differences in air and space environments require different air and space forces. Because of air forces' range and speed, airmen have a theater-wide perspective. In combat, the air operations center (AOC) controls and organizes air forces at the theater-level. In contrast, space forces provide a global capability, and the effective employment of forces in space requires a global perspective. Air forces are highly maneuverable. They can choose the time and place of attack, the route of attack, and the direction from which to attack. By contrast, space forces must expend energy to maneuver, cannot make large changes in their predictable flight paths, and carry limited fuel for maneuvering. The differences are so substantial that it logically follows that space forces should be a separate component of military forces, just as air, land, and sea components are.

Space corps key to solve—Air Force doctrines prevent space exploration

Richard **Moorehead**, U.S. Army Major, July **2004** (Military Review, Will We Need a Space Force?, http://www.au.af.mil/au/awc/awcgate/milreview/moorhead.pdf)

The Air Force needs an institution where space operators can debate space power theory and doctrine. Instead of establishing such an institution, the Air Force has taken traditional air power terms and applied them to space: "air superiority" led to "space superiority"; "counter air" led to "counter space"; and "airlift" led to "spacelift." No space power theory and doctrine exists separate and distinct from air power theory and doctrine. Space power doctrine should not be based on air power doc trine anymore than air power doctrine should be based on land power doctrine. Space power advocates argue that only an independent space force can develop suitable space power theory and doctrine. U.S. space power will never fully develop as long as it must compete for funding and institutional support inside an Air Force dominated by airmen. The Air Force voiced little protest when Congress cut the joint space-based radar demonstration and delayed the Space-Based Infrared System. However, when Congress challenged the F-22 program, the Air Force mounted a full-scale public affairs offensive against the challenge. When it must make tough choices, the Air Force is more likely to advocate funding for aircraft than for space systems. A separate Space Force would allow space power to compete for funding on a level playing field. The land, sea, and air services are using space to support their combat operations but not actively developing theory, doctrine, or methods for space warfare. But if space warfare is inevitable, the United States needs a separate Space Force.

Solvency—space corps

Space is the key place to establish hegemony—US must establish Space Corps now to cement US military power

James **Cashin**, AF Major, **and** Jeffrey **Spencer**, AF Major, April **1999** (Space and Air Force: Rhetoric or Reality?, The Way Ahead, http://www.fas.org/spp/eprint/99-023.pdf)

America's future security and economic prosperity depends on free access and use of space. The U.S. now leads in space, but must take a proactive role in ensuring its continued lead and the ability to defend its space assets. The key obstacle to pursuing this objective is the National Space Policy, which precludes use of space for other than "peaceful purposes." It makes the errant assumption that space will always be a sanctuary. In their book War and Anti-War, Alvin and Heidi Toffler make the assertion that the way a nation makes wealth, reflects how they make war. With more nations "making their wealth" in space, it is only a matter of time before space becomes another medium of warfare. With the current U.S. dependency on space, it must prepare now to fight and defend itself in and from space for the future. In order to break through the obstacles to achieving true space power, the nation needs an advocate to pursue space power much the same way General Mitchell pursued airpower. The Air Force took on this role in 1996 when its vision called for a transition to a space and air force, but it has since backed off with the "aerospace force" concept where space is seen only as a force enhancement. Senator Bob Smith is a current advocate fighting against the White House and military malaise toward the development of space power, but the appropriate realm to advocate space power in the defense of the nation is the military. Air Force support for space power to this point is more rhetoric than action, but it can and should return to its original vision of a space and air force. Internally, the Air Force should develop a space corps with the "spacemindedness" required to develop doctrine and educate. It could then team with the congressional advocates to change the National Space Policy, remove the treaty limitations, and fund development of new space systems to include space force application systems. Only in this way will the Space and Air Force of the future become a reality and be prepared to defend the nation's interests when called upon.

Space Corps solves best—has doctrinal support as separate branch

Shawn **Rife**, AF Major, April **1999** (Air Power Jor., On Space-Power Separatism, http://www.airpower.maxwell.af.mil/airchronicles/apj/apj99/spr99/rife.html)

In perhaps the most persuasive argument for a separate space service, Lt Col Bruce M. De Blois analyzes the two different environ-ments and extrapolates a comparison of the relative advantages of airpower and space power (table 1). Based on his analysis, De-Blois concludes that "one cannot build space power theory and doctrine in general upon air power theory and doctrine. Theories and doctrines of airpower, land power, and sea power may contribute significantly to the de-velopment of the theory and doctrine of space power, but space power clearly requires funda-mental, bottom-up, theoretical and doctrinal development. The most conducive require-ment for such development remains a separate space corps or service."

AT: Air Force Best

Air Force exploration to space fails—air power will always have priority

Frank **Finelli**, member Defense Science Board Panel on Transportation, **1999**(Aerospace Power Jor., Transforming Aerospace Power, http://www.airpower.maxwell.af.mil/airchronicles/apj/apj99/sum99/finelli.html)

During the Air Force posture hearing on 12 February 1998, Sen. Strom Thurmond (R-S.C.), SASC chairman, commented that with Global Engagement's vision of a Space and Air Force, we expected to see a noticeable shift in Air Force resource allocation toward space capabilities. But no such shift has occurred. The senator asked the chief of staff of the Air Force whether this emphasis on space was rhetoric or whether we would see money put behind it. Gen Mike Ryan's response that Global Engagement is "a very long term vision of where the Air Force is going" speaks volumes of near-term commitment to space transformation.15 Some people criticize Congress for not doing more in terms of funding space capabilities, but several reasons exist for this state of relative legislative inaction. First, the revealed preference of the Pentagon—as assessed from the white side of the defense budget—is that air is more important than space. However, numerous members believe that DOD has the fiscal and requirements flexibility to take more risk in TACAIR and place a bigger emphasis and investment in space. Consequently, we should not anticipate that Congress will add much in the way of funding for space capabilities when shifting funds may be a more prudent approach. Far more likely, key congressional leaders will continue to push for the establishment of a Space Corps to enhance the bureaucratic position for space capabilities in the Pentagon's fight for resources.

Aerospace heading under the Air Force fails—must draw from all parts of the Armed Forces

Benjamin S Lambeth, 2003(Rand Sen. Staff. Mastering the Ultimate High Ground, 133)

Yet despite the significant progress borne out by these examples toward making the contributions of space more routinely accessible by terrestrial warfighters, the Air Force's narrow focus on "aerospace integration" toward the end of the 1990s remained overly parochial and inward - looking-and was so perceived by the other services in the joint arena. Accordingly, the time has come to start thinking in terms of integrating space more fully with *all* the services in a joint context. Since the potential offerings of space promise to redound ultimately to the benefit of all terrestrial force elements, not just to that of Air Force air power, it seems incontestable in hindsight that merely "air and space" (or "aerospace") integration was a paradigm that precluded the kind of evolutionary change actually called for. Not only was the Air Force's insistence that air and space constituted a seamless continuum increasingly self-destructive over time, its stress on "aerospace integration" was also misfocused on integrating space solely with Air Force air functions when what was needed was a conceptual framework aimed at permitting better integration of U.S. military space capabilities with all the force employment functions of all the U.S. services.

The Air Force lacks the capability to get to space

Benjamin S. **Lambeth, 2003**, (RAND Sen. Staff, Mastering the Ultimate High Ground, Pg. 166-167)

It is perhaps not too soon, even now, for today's Air Force leaders to devote some thought to how their successors a generation or more downstream might best anticipate that challenge and how the service might best divest itself of the bulk of its space equities when that day of reckoning eventually comes. The alternative would be for tomorrow's Air Force to feel somehow cheated by that inexorable development, much as the Army felt wrongly cheated by the Air Force's attainment of independence in 1947, rather than instead feeling thankfully freed to continue fulfilling its historic role as the nation's full-service air arm as space rightly goes its own hard-earned way. Yet whatever the longer-term inevitability of offensive space-to-ground weaponization and the consequent emergence of a separate U.S. space service may be, the prevailing worldwide consensus today against such weaponization, the countervailing Air Force investment priorities of greater near-term importance, and the lack of technically feasible and cost-effective weapon options will all but surely foreclose any realistic chance of the Air Force's acquiring a significant space force-application capability for at least the next 15 years.

AT: Air Force Reformed

Your Air Force reform arguments are irrelevant—they have huge latitude in interpreting the mandates

Benjamin S Lambeth, 2003(Rand Sen. Staff. Mastering the Ultimate High Ground, 137)

Now that it has been granted such status, the Air Force should have every incentive to vindicate its designation as the nation's military space steward by moving proactively to fulfill its new role. In that regard, how the executive-agent role, now vested in Under Secretary of the Air Force Teets, is understood and played out by the civilian and uniformed Air Force leadership will be crucial. A key initial question concerns what executive-agent status for military space entails in principle and how the Air Force can best fulfill it in practice. Simply put, there is no government manual, at least yet, that explains what an executive agent for military space is and does. The absence of any agreed and formalized baseline for the charter would appear to give the Air Force great latitude to interpret and test the charter's boundaries. It seems almost axiomatic that the better the Air Force understands, articulates, and executes its new executive-agent role, the longer it will succeed in postponing the eventuality of an independent U.S. space service.

AT: Air Force/Air Power Add-on

Current Air Force housing of space activities trades off with R&D

Benjamin S Lambeth, 2003(Rand Sen. Staff. Mastering the Ultimate High Ground, 128-9)

However, the Air Force leadership never actively pursued such ail arrangement Nor did it ever make a serious effort actually to petition the Office of the Secretary of Defense (OSD) to be formally designated the nation's executive agent for military space. Had its leaders been so inclined, the Air Force might have reached out during the early 1980s to get space formally defined as a separate and independent mission area under its corporate purview. Instead, it simply asserted a *claim* to both air and space while never being officially given the space mission area as a separate tasking. As a result, military space continued to be paid for solely out of the Air Force's pre-existing budget allocation, and Air Force space, both predictably and of necessity, ended up facing the eventual prospect of being underwritten at the expense of other Air Force accounts, notably the service's force-projection air accounts-at the same time as must-pay space investments in the interests of all the services and other users grew at grate rate greater than that of the Air Force's overall annual budget dispensation. As just one straw in the wind in this respect, the Air Force laboratories at Wright- Patterson AFB Ohio, were not long ago put on notice by the Air Staff that the air portion of their R&D charter would experience significant cuts in the next budget cycle and that they would need to step up their space-related research activities with the resultant funds that will flow from future Program Objectives Monoranda (POMS) and budget apportionments.

Air Force fails—space trades off with aircraft R&D

Benjamin S. **Lambeth, 2003**, (RAND Sen. Staff, Mastering the Ultimate High Ground, Pg. 154-155)

Beyond the need to move more vigorously into the space-control mission area, the Air Force also faces much unfinished business in the less contentious force -enhancement arena which, as discussed earlier in this chapter, has been prompted by the aging of many on orbit systems now in service and the imminent emergence of a new generation of systems now at the threshold of being fielded. In the years ahead, space-based radars may take over much of the battlefield surveillance role currently performed by such aircraft as the E-8 Joint STARS, although there are reasons to believe that it may be 2020 or beyond before fielding a militarily effective constellation of GMTI and SAR satellites will be feasible .47 These options will soon be competing for resources within the Air Force R&D budget, and hard choices will have to he made and impediments removed if they are ultimately to be realized.

Acting through the Air Force leads to zero-sum tradeoffs with air power

Benjamin S Lambeth, 2003(Rand Sen. Staff. Mastering the Ultimate High Ground, 128-9)

That recent change in mindset on the proper understanding of space is overwhelmingly in the Air Force's interest and should be made a permanent fixture of Air Force thinking and rhetoric. To be sure, the now-discredited aerospace construct had never been a unanimous preference of the Air Force leadership. As noted above, a number of senior Air Force leaders who helped to sire AFSPC understood explicitly that air and space were separate mediums and mission areas warranting separate organizational support and funding treatment. This became increasingly apparent as the Air Force began putting ever more of its investment dollars into space in the absence of a commensurate increase in the Air Force's overall budget limit, making intra-Air Force budget trades ever more obvious and painful.

AT: Air Force/Air Power Add-on

Air Force control of space fails—it trades off with US air power

Bob **Smith**, senator, **1999** (Air Power Journal, The Challenge of Space Power, http://www.airpower.maxwell.af.mil/airchronicles/apj/apj99/spr99/smith.html)

The notion that the Air Force should have primary responsibility for space is not sacred. For the most part, space is well outside the "wild blue yonder." Just because space hardware and signals move about over our heads, must space be the exclusive domain of the Air Force? This is not a new question. In 1995 the commander in chief of US Space Command found "no compel ling arguments" to make the Air Force solely responsible for the design, launch, and operation of space systems.7In 1997 retired Air Force general Charles Horner told Space News that "if the Air Force clings to its owner ship of space, then tradeoffs will be made between air and space, when in fact the trade off should be made elsewhere."8Further-more, Gen Charles Krulak, commandant of the Marine Corps, stated that "between 2015 and 2025, we have an opportunity to put a fleet on another sea. And that sea is space. Now the Air Force people in the audience are saying, 'Hey that's mine!' And I'm saying, 'You're not taking it.'"9 These officers express legitimate frustra-tions, but I see a risk that their concerns could lead to a Balkanization of space power. This would be a setback. A better approach to ex-plore might be to vest US Space Command with authority similar to that held by US Spe-cial Operations Command—the Major Force Pro gram (MFP) structure. MFP-11 gives the commander of Special Operations Command substantial control over development, acquisition, promotions, and assignments in this unique mission area.

Creation of a Space Corps key to prevent trade offs between space and air power

Shawn **Rife**, AF Major, April **1999** (Air Power Jor., On Space-Power Separatism, http://www.airpower.maxwell.af.mil/airchronicles/apj/apj99/spr99/rife.html)

IN SEPTEMBER 1997, Gen Charles A. Horner, USAF, Retired, commander of coalition air forces during Operation De-sert Storm and later head of Air Force Space Command and US Space Command (CINCS PACE), created something of a stir should continue to run military space sys-tems: "If the Air Force clings to its owner ship of space, then tradeoffs will be made between air and space, when in fact the tradeoff should be made elsewhere." Although General Horner made his assertion based on budgetary considerations, his remarks encouraged Air Force officers who, using the original leaders of the US Air Force as role mod-els, argue for a separate "space service." Space-power enthusiasts see themselves as modern counter parts to the early airpower visionaries and often draw parallels between the rise of air power and the rise of space power. Both origi-nated in a desire to occupy the "high ground" and maintain a commanding perspective of the surface battlefield. Air-to-air and air-to-surface combat arose and flourished in the flames of two world wars, leading eventually to the crea-tion of independent air forces as air officers sought to set free a new and potentially decisive arm of military force from surface-warfare paradigms.

AT: Air Force/Air Power Add-on

Current Air Force faces shortfalls in air power due to in house competition from space program

Benjamin S **Lambeth**, **2003**(Rand Sen. Staff. Mastering the Ultimate High Ground, 145)

Compounding the continued high cost of space launch is the fact Air Force is facing an impending acquisition and funding problem of the first order, created by the block obsolescence of many on-orbit systems now in service and the imminent emergence of a new generation of systems now at the threshold of being fielded as replacements. Virtually every major U.S. military space system is facing a planned upgrade or replacement over the coming decade, at an estimated cost of some $60 billion. These include the next generation Global Positioning System (GPS), all military communications satellites, a space-based infrared system (SBIRS) to replace the Defense Support Program (DSP) constellation of missile-launch sensors, and a space-based laser technology demonstrator. There also is the looming prospect of space capabilities within the grasp of potential adversaries that could threaten some U.S. satellite functions and accordingly beg for defensive and counteroffensive space control measures-as well as the tantalizing potential of such new capabilities as space-based radar, laser communications, and hyperspectral sensing, all of which can significantly enhance overall terrestrial force combat effectiveness. The problem is that these technology opportunities have arisen at a time when the Air Force is also facing an unprecedentedly expensive replenishment cycle in its fielded air assets. All of these options are competing for scarce resources within the Air Force budget, and hard choices will have to be made and impediments removed if those options are to be realized.

Funding trades off with Air Force R&D

Benjamin S **Lambeth, 2003**(Rand Sen. Staff. Mastering the Ultimate High Ground, 146)

A core challenge here entails devising an equitable funding arrangement that will adequately underwrite the nation's military space needs in the interest of all services, but not at the unacceptable expense of the Air Force's Title X-mandated air responsibilities. To correct this aberration, military space funding must somehow be drawn from the totality of the U.S. defense budget-including not only Air Force air programs but also Army helicopters, Navy carrier aviation, and Marine aviation, along with offset decrements to submarines, surface ships, tanks, howitzers, and all other military procurement programs across the board. The reason is that military space is not just another Air Force service- specific function such as airlift and close air support, which serve other categories of military operations and other services. Rather, it constitutes a separate and distinct mission arena in its own right that promises over time to become as costly to underwrite to its fullest potential as the land, maritime, and air arenas are today. As long as U.S. military space funds are provided for as they are now-that is, almost entirely within the Air Force's R&D and procurement budget-those in the Office of Management and Budget and in Congress will retain every inclination to continue their familiar and historic "service budget balancing" practices, and the other services will be more than content to go along. Unless and until there is a change in the way military space capitalization is paid for, it will continue to come almost exclusively out of the Air Force's annual resource allocations. Valiant attempts to "persuade" the other services to pony up their fair share for the benefit they accrue from the nation's on-orbit systems, something the Space Commission clearly concluded was overdue for attention, will go nowhere.

AT: Air Force/Air Power Add-on

Funding shortfalls hurt US Air Force readiness

Benjamin S **Lambeth, 2003**(Rand Sen. Staff. Mastering the Ultimate High Ground, 142-3)

Of all the uncertainties that currently affect the Air Force's prospects for realizing the near-term promise of military space, none is more critical than the most basic question of how and at what opportunity cost those prospects will be financed. Echoing an argument voiced for years by many airmen (and not just those in the space career field), the Space Commission categorically concluded in January 2001 that America's military space capabilities are "not funded at a level commensurate with their relative importance." This predicament is traceable largely to the fact that military space funding comes almost entirely out of the Air Force's budget, even though all of the uniformed services benefit from the space products ultimately provided. Not surprisingly, the Air Force has thus become increasingly hardpressed to uphold both its air and its space mission responsibilities with only a constant one-third share or so of overall annual defense total obligational authority (TOA). One reason why the other services have been so readily acquiescent in the Air Force's dominance of military space is almost surely that the Air Force's shouldering of virtually the entire military space funding burden has essentially allowed them a free ride. One should hardly be surprised that the other services would have such an unlimited appetite for space support and such an unbounded roster of space "requirements" when they do not have to pay for those costly force- enhancement benefits.

Space Mil Advantage

AT: Space Mil Now

We need to move to weaponize space, which is distinct from our current posture.

Charles V. **Peña** and Edward L. **Hudgins**, senior defense policy analyst & former director of regulatory studies at the Cato Institute, March 18, 20**02** (Should the United States "Weaponize" Space? Military and Commercial Implicatons, http://www.cato.org/pub_display.php?pub_id=1286&print=Y)
Control of space is at the crux of the debate about the future of U.S. military space policy. The question is not about militarizing space. Clearly, we have been using and will continue to use space for military purposes. But, whereas we are currently using space assets to support terrestrial (ground, sea, and air) military operations, what Sen. Robert C. Smith (R-N.H.), the Space Commission (which was chaired by current Secretary of Defense Donald Rumsfeld), and others have proposed is that the United States move toward "weaponizing" space for space control.

U.S. Leads Now

U.S. currently dominates space militarization.

Wu **Chunsi**, Development Goals of China's Space Program, **2005**,

Regarding the application of U.S. military space assets, during the 1999 Kosovo conflict, hundreds of GPS-guided Joint Direct Attack Munitions were used, with an additional 5,000 employed in Afghanistan from 2001-02. A compa-rable number were utilized in Operation Iraqi Freedom in 2003.6In comparison to U.S. actions, other countries involved in military operations during the same decade did not demonstrate such space capabilities; including in conflicts involving the European Union and NATO in Yugoslavia and Russia in Chechnya. The United States is the only nation that possesses the means to exploit space-based assets for military force on the battle field. The maintenance of this status quo is the main aim of U.S. policy.

U.S. Vulnerable Now

The U.S. is vulnerable in space now and has insufficient military capability in space

Matthew **Mowthorpe**, Phd from University of Hull, The Militarization and Weaponization of Space p.193, **2004**

One such event was the Pentagon's "Title 10" war game examining military space. "Title 10" was set in the period 2010-2017 and demonstrated the value of advanced systems, such as rapid-response space planes and on-orbit radar constellations. The previous war games conducted by the U.S. Air Force, "Global Engagement V" and the Navy's "Global 2000" war games underscored the importance of a deep-look, rapid strike capability to locate and destroy time-sensitive targets in enemy territory.14 Prior to this, there had been war games that had included space assets, but Global Engagement V and Global 2000 were more realistic in the sense that the teams had not been given a large number of space-strike capabilities. The insights from these war games were that the United States requires a capability to rapidly reconstitute its national security space platforms. If an adversary knocks out of commission 6, 8, or 10 satellites, these need to be replaced. During Global Engagement V they were replaced by microsatellites which were put into orbit by space orbiting vehicles. The timing signals from the Global Positioning System that are vital to network-centric warfare require multiple platforms and systems in order to synchronize actions. This has led to concerns regarding GPS vulnerability.25 A further insight was that the United States does not have a current or programmed means to quickly strike important, time-sensitive targets deep inside a country.

Must Act Now – Solve Space Races

Must militarize now to avert future space wars.

Leonard **David**, senior writer for space.com, June 17, **2005** (Weapons in Space: Dawn of a New Era, page #1)

The time to weaponize and administer space for the good of global commerce is now, when the United States could do so without fear of an arms race there." This is the view of Everett Dolman, Associate Professor of Comparative Military Studies in the School of Advanced Air and Space Studies at Maxwell Air Force Base, AlabamaDolman exp. No peer competitors are capable of challenging the United States Dolman explained, as was the case in the Cold War, and so no "race" is possible. The longer the United States waits, however, the more opportunities for a peer competitor to show up on the scene.Dolman argues that, in ten or twenty years, America might be confronting an active space power that could weaponize

If the U.S. acts now to militarize space, it will be able to extend its unipolar leadership without generating arms races.

Leonard David, senior writer for space.com, June 17, 2005 (Weapons in Space: Dawn of a New Era, page #1)

For those that think space weaponization is impossible, Dolman said such belief falls into the same camp that "man will never fly". The fact that space weaponization is technically feasible is indisputable, he said, and nowhere challenged by a credible authority. "Space weaponization can work," Dolman said. "It will be very expensive. But the rewards for the state that weaponizes first—and establishes itself at the top of the Earth's gravity well, garnering all the many advantages that the high ground has always provided in war—will find the benefits worth the costs."What if America weaponizes space? One would think such an action would kick-start a procession of other nations to follow suit. Dolman said he takes issues with that notion."This argument comes from the mirror-image analogy that if another state were to weaponize space, well then, the U.S. would have to react. Of course it would! But this is an entirely different situation," Dolman responded."The U.S. is the world's most powerful state. The international system looks to it for order. If the U.S. were to weaponize space, it would be perceived as an attempt to maintain or extend its position, in effect, the status quo," Dolman suggested. It is likely that most states—recognizing the vast expense and effort needed to hone their space skills to where America is today—would opt not to bother competing, he said.

Must act now – avoid first strikes

Failure to act now to maintain dominance leads to first strikes against our space capabilities.

John A. **Tirpak,** Executive Editor of Air Force Magazine On-line, **June 2006(**Journal of the Air Force Association, Space and Counter Space, p.43) http://www.afa.org/magazine/June2006/0606space.asp

Klotz went on, "We have witnessed attempts to negate [the US space advantage] and understand the need to protect our space systems. Given the opportunity, our adversaries will attempt to exploit any and all weaknesses."

This sentiment is reflected in the basic USAF doctrine document for counterspace operations, written in 2004. Regarding it, Gen. John P. Jumper, then the Chief of Staff, wrote that "adversaries will target space capabilities in an attempt to deny [our] combat advantage. We must also be prepared to deprive an adversary of the benefits of space capabilities when American interests and lives are at stake."

Current US policy of ambivalence toward space risks preemptive attack by other powers

Benjamin S. **Lambeth**, **2003**, (RAND Sen. Staff, Mastering the Ultimate High Ground, Pg. 152-153)

On top of that, as explained in the preceding chapter, there has been for years a pronounced and continuing national disinclination to tamper with the status quo concerning space force- application initiatives and "weaponization." There also remains a persistent absence of national agreement over present and emerging threats to U.S. space-based assets. On this point, in a forceful call for bolder U.S. measures toward acquiring a serious space control capability, space-power advocate Steven Lambakis cited the "awkward absence of a collective, politically sanctioned vision for space," adding that "while space control is viewed as a logical outgrowth of a commitment to freedom of space, it has been neither a mission area that the citizens of the U.S. truly believe in nor one that energizes present U.S. strategic thinking. 1144 The resultant "debate" over U.S. military space policy, he concluded, has been entirely predictable and has turned on decades-old arguments about preserving space as a sanctuary and not generating new instabilities. It has been further aggravated, one might note, by a natural media tendency to sensationalize and to assume the worst, as was evident in the press agitation over the presumed hidden agenda for national missile defense (described in Chapter Four) occasioned by Secretary Rumsfeld's perfunctory announcement in May 2001 of his planned organizational reforms for military space. These facts have invariably made all calls for space force application initiatives and, by association, for even more relatively benign space control measures, both provocative and polarizing. So long as such a disinclination to grapple with the nation's rock-bottom security needs in space persists and the nation continues to adhere to all ambivalent military space strategy, space will remain only a supporting enabler of terrestrial operations. Worse yet, as long as steps toward acquiring effective defensive and offensive space control capabilities continue to be held in check by Political irresolution and Popular indifference, the nation will run an increasing risk of being caught by surprise someday as a result of its space vulnerabilities being exploited by a hostile party-whether or not in a notional "space Pearl Harbor."

Space Mil Inevitable – Must Act Now

Space mil is inevitable, the U.S. must act now to ensure leadership.

Larry J. **Schaefer**, Lt. Col., USAF, August **2002** (Center for Strategy and Technology, Sustained Space Superiority: A National Strategy for the United States, page#3)

There is an interdependent relationship between these two items – sustained national space superiority provides the necessary elements for the military to conduct space control, and space control is required for sustained national space superiority. The United States must accept the inevitability that the increasing importance of space will make it a lucrative target during future conflicts and compel the United States to defend its interests there. This study discusses how national and international forces will eventually cause the United States to put weapons in space, and take the steps needed to ensure the nation is prepared for adversarial attempts to deny our use of space.

Air Force Key

Effective air force space mil doctrine and technology key to deter wars and ensure victory in the event of conflict.

Thomas D. **Bell**, Lt Col, USAF. **1999,** Weaponization Of Space:Understanding Strategic and Technological Inevitabilities. Center for Strategy and Technology

The weaponization of space provides the asymmetric technology the US needs to win the next war. The United States is the only nation with the economic and scientific potential to make this technology a reality in the next thirty years. The technological development of weapons that apply force in, from, and through space must have the goal of fielding weapons as the technology matures. Just as the doctrine of daylight precision bombing guided the development of the long-range bombers of World War II, today's Air Force must develop doctrine for the employment of space weapons. This space version of strategic bombardment doctrine will serve both as a guide to technological development and as a plan for the long-term structure of the Air Force. If no war comes, US space-based capabilities will have proven an effective deterrent force; if war does come, as the inevitable result of competition on earth or in space, technological asymmetry will once again be a large factor in giving the United States the capability for winning a decisive victory. To be effective, however, institutional and doctrinal change must accompany this technological asymmetry.

Space Mil Key to Readiness - Land

Space militarization key to land force dominance.

Gordon **Sullivan**, General and Chief of Staff of the U.S. Army, and Togo **West**, Secretary of the Army, July **1994** (Army Space Reference Text, Army Space Policy, http://www.fas.org/spp/military/docops/army/ref_text/appa.htm)

Future success of Army forces will be critically dependent upon exploitation of space assets, capabilities, and product across the entire spectrum of military operations. In an environment of rapid political, technological, and economic change, Army access to national, civil, allied, military, and commercial space capabilities and products is essential to successful operations. Consistent with National and Department of Defense policies and in cooperation with other services and agencies, the Department of the Army will conduct space and space-related activities that enhance operational support to warfighters and contribute to successful execution of Army missions. Furthermore, the Army will consider space to include those regions from, through, or in which space space-surrogate systems operate. Employment of space products that meet land warfighter requirements will provide a force multiplier essential to our power projection force. Information technology which enables success on the battlefield relies heavily on space solutions. Beyond affecting future space systems design and developmental initiatives, the Army, in joint and combined operations, will organize and train Army forces using space capabilities and projects to make them more responsive, flexible, interoperable, survivable, and sustainable. Space and space-related capabilities are essential contributors to Army modernization objectives. In addition to exploiting space systems, the Army will ensure that new systems support land component requirements. Space applications will be embedded in Army doctrine, training scenarios, wargames, exercises, and plans. The use of space products will be normalized in the preparation for and conduct of assigned missions.

Successful execution of this policy requires developing, maintaining, and enhancing Army space expertise to include provision for training of space-knowledgeable soldiers and civilians and the development space concepts, doctrine, requirements and equipment. The Army will seek to normalize the direct and immediate in-theater response to commanders from evolving space-based capabilities.

Aggressive exploitation of space capabilities and products normalized in concepts, doctrine, training, operations, and modernization will ensure that the Army is able to maintain land force dominance will into the 21st century. The Army's future is inextricable tied to space.

Space Mil Key to Readiness – All

Space militarization key to all force projection capabilities.

Hayes Peter, cant find any info about him. someone plz do he has 150 good pages 2002 (INNS Official paper 42, United States Military Space: Into the Twenty First Century)

Defense Space Sector. Space-related capabilities help national leaders to implement American foreign policy and, when necessary, to use military power in ways never before possible. Today, information gathered from and transmitted through space is an integral component of American military strategy and operations. Space-based capabilities enable military forces to be warned of missile attacks, to communicate instantaneously, to obtain near real-time information that can be transmitted rapidly from satellite to attack platform, to navigate to a conflict area while avoiding hostile defenses along the way, and to identify and strike targets from air, land or sea with precise and devastating effect.

And, military readiness for the U.S. in the modern era depends on military dominance in outer space, which will become even more crucial as time progresses.

Lance **Lord**, General and Commander of Air Force Space Command at Peterson AFB in Colorado, June 1 **2004** (*Air and Space Power Journal*, Commanding the Future, http://www.airpower.maxwell.af.mil/airchronicles/apj/apj04/sum04/lord.html)

Today, events unfold before our eyes around the world as if we were there. We have advance warning of adverse weather as it develops. We can communicate with people 10 or 10,000 miles away with equal ease, and a small receiver tells us our exact position and how fast we are moving in the air, on land, or at sea. New technologies move large amounts of data around the world at the speed of light. Although a century ago people would have considered such feats science fiction, modern space capabilities make these, and so many more things, unquestionable facts. Space power has transformed our society and our military. Today, at the outset of the twenty-first century, we simply cannot live—or fight and win—without it.

Although many people refer to Operation Desert Storm as the first space war, it did not mark the first use of space capabilities during conflict. During the war in Vietnam, space systems—communications and meteorological satellites—provided near-real-time data that was essential for combat operations.[2] The Gulf War of 1991, however, was the "first conflict in history to make comprehensive use of space systems support."[3] Since then, we have worked hard to integrate the high-tech advantages provided by speed-of-light space capabilities into all our forces—air, land, and sea. Those efforts significantly improved our American joint way of war, and they paid off during Operation Iraqi Freedom.

American forces led a coalition that set benchmarks for speed, precision, lethality, reach, and flexibility. As President George W. Bush said on 1 May 2003 aboard the USS Abraham Lincoln, "Operation Iraqi Freedom was carried out with a combination of precision and speed and boldness the enemy did not expect, and the world had not seen before. From distant bases or ships at sea, we sent planes and missiles that could destroy an enemy division, or strike a single bunker."[4] In a matter of minutes—not hours, days, or weeks as in past wars—commanders identified and engaged targets and received timely battle damage assessment. Lt Gen T. Michael "Buzz" Moseley, the combined force air component commander, reinforced the role that space capabilities played when he said, "The satellites have been just unbelievably capable . . . supporting conventional surface, naval, special ops and air forces. They've made a huge difference for us."[5]

Space warriors deployed to the coalition's air and space operations centers (AOC); some served as expert advisors to the combined force land component commander; and others deployed to wing-level units where they integrated, facilitated, and generated space-combat effects. In the evolving nature of warfare, though, not all of our space warriors need to deploy. Space

Space Mil Key to Readiness – All

Lance **Lord**, General and Commander of Air Force Space Command at Peterson AFB in Colorado, June 1 **2004** (*Air and Space Power Journal*, Commanding the Future, http://www.airpower.maxwell.af.mil/airchronicles/apj/apj04/sum04/lord.html)

forces operating from home stations backed up those deployed experts and in many cases provided direct support and information to joint and coalition forces in the field. Throughout the conflict, our space AOC orchestrated and integrated this time-critical reachback support with theater operations.[6]

Working with other highly trained, highly skilled, highly connected, and highly integrated combat warriors, we can generate unprecedented combat synergy on the battlefield. This synergy—something we have come to expect—is aided immeasurably by eyes, ears, links, and beacons from the "high ground" of space.

There is a face to space—space capabilities and their effects touch every facet of our combat operations, but not until we start looking at specific examples does the impact of those effects really hit home. Lt Gen Dan Leaf describes this impact: "Space systems were woven through every bit of [the] moving, shooting, and communicating our land forces did."[7] He likes to share a story from Iraqi Freedom that illustrates the synergy of our forces today.

In late March 2003, the lead elements of the 3rd Infantry Division engaged enemy forces just south of the Iraqi city of Najaf. Members of Charlie Troop of the 3rd Squadron, 7th Cavalry, encountered Iraqi forces at night in a dust storm and were surrounded. They had sporadic contact on the east and on the south as well as fairly persistent contact with a large, armored enemy force on the west while another enemy force was moving down from Hallah towards Najaf. This contact was so close that Iraqi rocket-propelled grenades ricocheting off US armored tracks were killing Iraqi soldiers. The severe weather forced the Iraqis to pack their T-72 tanks and other armored vehicles very tightly together. During the intense fighting, US Army soldiers dismounted their tracks and picked up enemy AK-47 rifles from the dead and wounded to fire back at the enemy. During this engagement, an Air Force tactical air controller engaged a reported 20 T-72s and some 10 to 15 other armored vehicles with four 2000-pound global positioning system (GPS)-aided Joint Direct Attack Munitions (JDAM) from an Air Force B-1 bomber. The bomber received the tasking via satellite communications and, because of GPS navigation satellites, put its weapons precisely on the enemy, destroying the Iraqi force. When the dust cleared, Charlie Troop had not suffered any casualties. Coalition forces turned a potential disaster into a decisive defeat of the enemy while visibly demonstrating the asymmetric advantage that integrated air and space capabilities can bring to the fight. Another example that puts the "face to space" comes from World War II and the daylight bombing raids on Schweinfurt, Germany, in 1943. The targets were five ball-bearing factories essential to German fighter production. On the first mission, which took place on 17 August, 200 B-17 Flying Fortresses dropped 760,000 pounds of ordnance. Thirty-six aircraft were lost on that mission alone. On 14 October, America lost an additional 60 aircraft, and another 138 were damaged out of 291 sent on the raid, for a two-mission total of 68 percent damaged or destroyed! The United States Army Air Forces could not sustain deep-penetration missions without fighter escorts—the damages were too severe. As a result, the Allies suspended attacks for four months, and German production returned to preraid levels. Today a single B-2 or B-52 mission with five GPS-guided JDAMs (10,000 pounds of ordnance) would have much better effects versus the 24 million pounds dropped on Schweinfurt that destroyed the targets but caused significant collateral damage and numerous civilian deaths. Once again, this example illustrates the asymmetric effect of integrated air and space forces. The lessons learned from every contingency operation since Desert Storm highlight the importance and urgency to fully integrate space into the fight. Today, our integrated team of dedicated space professionals and the space and missile capabilities they bring are essential to any fight and, maybe more importantly, to deterring conflict before it begins. Military space is not in the back room behind the secret door anymore.

Although we rightfully tout our recent combat successes, Air Force Space Command must move forward to face even greater challenges in the future. Space capabilities provide an ever-increasing asymmetric advantage for our nation's military. We must not let that significant advantage become a disabling vulnerability. Future adversaries understand the importance of space and the advantage it offers our forces. We have to assume that those same potential adversaries are developing methods to challenge our capabilities. It has been said that "you never really know what you have until it is gone." Imagine the effects of tugging on the string of space—a string tightly interwoven into the fabric of our joint force. Our capabilities would quickly begin to unwind. We have enjoyed a period of unchallenged dominance in military space that has enabled our success since Desert Storm. Our jobs would become much easier if we could expect this trend to continue, but we would be living a dream.

Space Mil Key to RMA

Space Militarization is key to RMA

Matthew **Mowthorpe**, Phd from University of Hull, The Militarization and Weaponization of Space p.217**, 2004**

The United States, Russian, and Chinese approaches to the Revolution in Military Affairs all identify military space as playing a fundamental part towards achieving a RMA. The components that comprise the RMA are precision strike, information warfare, and dominant maneuver. These components are underpinned by space systems that supply much of the information that is required to illuminate the battlefield in order to take advantage of the aforementioned components. Space is the arena in which the sensors, and transmission of the sensors of the information occurs. The benefit of these transmissions enables the battlefield commander to have an information edge over an adversary. It is not altogether surprising to discover that the United States, along with China and Russia have recognized the importance of space systems to the current RMA.

Space Mil Key to Heg

Space militarization key to overall U.S. leadership.

Taylor **Dinerman**, New York City journalist. Monday, February 27, 20**06** (United States Space Force: sooner rather than later, http://www.thespacereview.com/article/565/1)
Leaders inside the Pentagon keep saying that space is the critical backbone of network-centric warfare. The evidence shows that, without space, American global military superiority would not be anywhere near what it is today. Our enemies know this and are working hard to find new ways to damage and degrade US space superiority. To counter this, and to give America a new set of grand strategic options, a new space force is needed: not immediately, but within the next five or ten years. Future presidential candidates, if they want to show they are serious about national security, should consider making this reform part of their platform.

Leadership in space is vital to all aspects of American leadership and economic well-being.

Christopher **Petras**, Chief of Operations Law for United States Space Command, Fall 20**02** (*Journal of Air Law and Commerce*, The Use of Force in Response to Cyber-Attack on Commercial Space Systems—Reexamining "Self-Defense" in Outer Space in Light of the Convergence of U.S. Military and Commercial Space Activities, Pg. 8)

While the phrase "space control capabilities [and] military measures" is arguably a euphemism for "space and terrestrial force," the 1996 policy left the question of the use of force in response to an attack on U.S. space assets awash in verbiage. By the end of the decade, however, the expanded commercial use of space, and the growing dependence of the military on the commercial space sector to provide essential services, gave rise to renewed concern over the vulnerability of the nation's space systems to attack. 81 So, in 1999, DoD promulgated its current space policy, which clarified the issue: Space is a medium like the land, sea, and air within which military activities shall be conducted to achieve U.S. national security objectives. The ability to access and utilize space is a vital national interest because many of the activities conducted in the [*1231] medium are critical to U.S. national security and economic well-being. Ensuring the freedom of space and protecting U.S. national security interests in the medium are priorities for space and space-related activities. U.S. space systems are national property afforded the right of passage through and operations in space without interference, in accordance with [the National Space Policy (1996)]. Purposeful interference with U.S. space systems will be viewed as an infringement on our sovereign rights. The U.S. may take all appropriate self-defense measures, including... the use of force, to respond to such an infringement on U.S. rights. 82Thus, under the new DoD policy, it is now clear that the United States construes the "inherent right of self-defense" as not only allowing the use of military force in response to attacks on the nation's military space systems, but in response to attacks against U.S. commercial interests and investments in space as well. 83

Space mil k/t heg

Control of space is the key factor in US hard power

Major **Willson** (B.A., C.W. Post College; J.D., Touro School of Law; LL.M., The Judge Advocate General School) is the International & Operational Law Attorney, Army Space Command, Colorado Springs, Co. 20**01** (An Army View of Neutrality in Space: Legal Options for Space Negation, lexis)

Remote-sensing is the collection of images of the Earth's surface using satellites. [43] It is used by militaries for a near real-time image of the battlefield including troop and weapon positions. [44] Satellite images provide commanders a view of the battlefield, allowing them to more accurately plan their attack based on enemy troop and weapon positions. Remote sensing in the hands of an adversary is dangerous to the U.S. because of the loss of surprise and stealth. As suggested earlier, Iraq's blindness to the battlefield allowed General Schwarzkopf to carry out his "Hail Mary." As of 1995, Russia, Canada, Japan, France, Brazil and India possessed international remotesensing satellites. [45] The French company SPOT offers to clients a video-moving map, which provides, "simulated low-level flight over the imaged terrain, intended for mission planning or familiarization for military aircraft and cruise missiles." [46]The key to remote sensing is resolution. Attaining greater resolution leads to a clearer picture and more useful information. "Presidential Directive **[*185]** 23 (PDD 23), issued in 1994, states that dissemination of imagery with resolution of one meter or less might be harmful to U.S. national security." [47] Space Imaging, a U.S. based company, offers one-meter color imagery over the internet. [48] SPOT, a French commercial imagery company, advertises tenmeter resolution, but its capability has been described as being closer to five-meters. [49]Present space capabilities pose a threat to the U.S. when placed in the hands of an adversary. The U.S. must be prepared to deny or negate the enemy's ability to capitalize on these capabilities whether it is their own, leased, or purchased from a commercial company. This denial or negation will likely include pursuing avenues ranging from political protests to the threat or use of force against commercial industry and possibly neutral territory. General Thomas D. White, the Air Force Chief of Staff in 1955 stated, "the United States must win and maintain the capability to control space in order to assure the progress and pre-eminence of the free nations. If liberty and freedom are to remain in the world, the United States and its allies must be in position to control space." [50]

Remote sensing in space creates opportunities to both bolster national security and to stimulate the economy

Michael **Hovertsen,** Chief, Air and Space Law Branch, International and Operations Law Division, Office of the Air Force Judge Advocate General, **2001 (***50 A.F. L. Rev. 253,* lexis)

Under the Remote Sensing Policy Act, land remote sensing is defined as "the collection of data which can be processed into imagery of surface features of the earth from [a] . . . satellite . . ." [10] In essence, space-based remote sensing is the collection of data regarding the surface of the earth by satellite. Various technical means are employed to accomplish data collection from space.The commercial availability of high-resolution imagery presents both a great benefit and a deep concern for U.S. national security and military operators. On one side of the coin is the fact that the U.S. government is a primary customer of the commercial remote sensing industry. The military is certain to benefit from access to high-resolution commercial imagery, potentially saving it the billions of dollars required to produce, field and operate some space-based remote-sensing systems. There is a dark side, however. Just as the military will have access to high-resolution commercial imagery, so too will the general public and foreign entities, allies and adversaries alike. Without proper protections, military movement and build-up, the lay-out of military facilities and even the locations of individual pieces of military equipment could be made available to the public eye within a matter of hours. Obviously, this circumstance could have grave consequences for military operations and U.S. national security. With the potential profits to be realized and technological advances to be achieved from the commercialization of space-based remote sensing, it is clear that a balance must be struck between maintaining the viability and profitability of the commercial industry and protecting the national security of the U.S.

Space mil k/t heg

Remote sensing data solves for the environment and military reconnaissance

Michael **Hovertsen,** Chief, Air and Space Law Branch, International and Operations Law Division, Office of the Air Force Judge Advocate General, **2001 (***50 A.F. L. Rev. 253*, lexis)

Applications of space-based remote sensing data are seemingly endless. Perhaps most widely known is the use of remotely sensed imagery in weather forecasting seen daily on every local television news program. While news media applications continue to grow, remote sensing applications in the civilian sector go far beyond reporting the news and forecasting the weather. In agriculture, crops can be monitored for disease and drought, ultimately providing estimates of crop yields. Similarly, the health of forests can be ascertained and the scale of deforestation monitored. Geographical and geological studies allow for detailed mapping of the earth's surface and the discovery of potential mineral resources. Water and marine resources can be observed to monitor pollution or to track icebergs and marine life. Air pollution and the depletion of the ozone layer can be monitored as well. Remote sensing can also be of assistance in monitoring and relieving the devastation caused by natural disasters. In addition to the numerous civilian applications, remote-sensing technology is also used for military reconnaissance and verification of compliance with arms control treaties, contributing to world security. [18] Although certainly not inclusive, Table 2 lists various remote sensing applications.

US control of space key to US hegemony

Sean R. **Mikula**, Lawyer and former Military Intelligence Officer,**2001,**(Blue Helmets in the Next Frontier: The Future is Now,The Georgia Journal of International and Comparative Law, lexis)

Although the rhetoric of most nations would seem to indicate a common preference for demilitarizing space, a closer look reveals a sharp divergence of position. On the one hand is the U.S. position, embodied in a statement by General Colin Powell while he was Chairman of the Joint Chiefs of Staff. The "Gulf War taught us that the United States must 'achieve total control of space if to succeed on the modern battlefield.' " [82] Having been recently appointed Secretary of State, Powell brings these views to the national security team, where they can reasonably be expected to influence future U.S. military development.

Space weaponization is inevitable—the US must act now to maintain hegemony

Charles **Park**, University of Houston Law Center; M.A., New York University; B.A., Columbia University, Spring **2006** (Houston Journal of International Law, INCREMENTAL STEPS FOR ACHIEVING SPACE SECURITY: THE NEED FOR A NEW WAY OF THINKING TO ENHANCE THE LEGAL REGIME FOR SPACE, lexis)

For better or for worse, the Bush Administration, like-minded members of Congress, and the U.S. military are the only vocal proponents of space weaponization. 80 These advocates of weaponization base their argument on three major assumptions: inevitability, vulnerability, and control. 81 The core of the inevitability argument is that weapons in space are virtually unavoidable. Consequently, the United States must stay ahead of the curve to maintain a maximum level of security. 82 The vulnerability argument relies on the fears many Americans have in regards to the increasing number of threats in today's world and the need to provide protection from these various threats. 83 Finally, in light of all of the advantages space has to offer, the control argument focuses on the American desire to expand upon [*887] its current dominance in space. 84

Space mil k/t heg

Space weaponization key to US national security

Charles **Park**, University of Houston Law Center; M.A., New York University; B.A., Columbia University, Spring **2006** (Houston Journal of International Law, INCREMENTAL STEPS FOR ACHIEVING SPACE SECURITY: THE NEED FOR A NEW WAY OF THINKING TO ENHANCE THE LEGAL REGIME FOR SPACE, lexis)

The ability of the United States' military to operate in space is unquestionably seen as vital to the nation's security. In fact, in the National Defense Authorization Act for Fiscal Year 2000, the Congress asked the Department of Defense to "identify the technologies and technology demonstrations needed ... to take full advantage of use of space for national security purposes." [129] According to U.S. Space Command, this is likely to entail increased military use of civil, commercial, and international space systems. [130]The implication here is that defending U.S. space assets directly impacts U.S. national security. The concept of defending military space assets is not unprecedented, evidenced by the amount of money spent by the United States in the research and development of "defensive" space weapons. [131] However, the increasing commercialization of space has broadened the scope of the concept of self-defense to include not only threats against a nation's people, but also threats against a nation's property.

Space is the key arena to defend US national security

Charles **Park**, University of Houston Law Center; M.A., New York University; B.A., Columbia University, Spring **2006** (Houston Journal of International Law, INCREMENTAL STEPS FOR ACHIEVING SPACE SECURITY: THE NEED FOR A NEW WAY OF THINKING TO ENHANCE THE LEGAL REGIME FOR SPACE, lexis)

America's deep-seated fears about the vulnerability of its space assets [135] are rooted in the fact that the United States is more dependent on space technology for its security and economic well-being than any other nation. [136] Consequently, as the enemies of the United States become more technically proficient in space operations, U.S. military policymakers are driven to protect space assets they believe to be a "soft underbelly" ripe for attack. [137] However, it is not just U.S. space assets that policymakers are seeking to protect. The reality is that America's critical infrastructure, encompassing the telecommunications, banking and finance, energy, trans-portation, and essential government services, has become increasingly vulnerable to precision missile attacks.

Space weaponization is inevitable—the US must invest in space now to deter conflict and maintain US power projection

Charles **Park**, University of Houston Law Center; M.A., New York University; B.A., Columbia University, Spring **2006** (Houston Journal of International Law, INCREMENTAL STEPS FOR ACHIEVING SPACE SECURITY: THE NEED FOR A NEW WAY OF THINKING TO ENHANCE THE LEGAL REGIME FOR SPACE, lexis)

We know from history that every medium - air, land and sea - has seen conflict. Reality indicates that space will be no different. Given this virtual certainty, the United States must develop the means both to deter and to defend against hostile acts in and from space. This will require superior space capabilities. [88]In 2000, Secretary of Defense Donald Rumsfeld chaired the Commission to Assess United States National Security Space Management and Organization. The Commission warned of a "space Pearl Harbor" if the United States did not move to defend its space assets. [89] The statement above from the Rumsfeld Commission summarized the sentiment of many hawks in the United States about the need to achieve space dominance in order to achieve the best possible space security. [90] Accordingly, this view of space by weapons proponents not only justifies military support missions, but also lends support to the justifiable application of military force through the use of weapons stationed in space.

Space mil k/t heg

Acting now to weaponize space boosts US military preeminence and deters an arms race and war

Charles **Park**, University of Houston Law Center; M.A., New York University; B.A., Columbia University, Spring **2006** (Houston Journal of International Law, INCREMENTAL STEPS FOR ACHIEVING SPACE SECURITY: THE NEED FOR A NEW WAY OF THINKING TO ENHANCE THE LEGAL REGIME FOR SPACE, lexis)

The direct benefits to the United States of implementing space weapons are clear. Not only can space weapons be the primary tool for information warfare, they can also provide an increased capability for stopping "potential aggressors more effectively, with less collateral damage, compared to conventional arms." [166] However, the United States also stands to gain indirect benefits from achieving space dominance. It is possible that U.S. efforts to achieve space weaponization primacy would prevent an arms race in space before it ever starts by establishing "a globally dominant, stabilizing force in space." [167] Also, a space-based weapons system could be the basis of a stabilizing cooperative security regime in outer space that abides by agreed upon rules of the road. [168]

Space militarization deters armed conflict

Michel **Bourbonniere** winter 20**05** Southern Methodist University School of Law, Journal of Air Law and Commerce NATIONAL-SECURITY LAW IN OUTER SPACE: THE INTERFACE OF EXPLORATION AND SECURITY, lexis

Dr. Edward C. Welsh, the former Executive Secretary of the National Aeronautics and Space Council, commented on space and national-security in reference to the National Aeronautics and Space Act of 1958 disposition that "activities in space [should be devoted] to peaceful purposes for the benefit of all mankind" in the following terms: That is a sound policy for any vigorous, peace-loving nation. Even though it is sound, however, I know also that it is sometimes misinterpreted. It does not mean that space has no military or defense uses ... Nothing is more essential for peace than the capability to discourage or deter attack. In my view, we do not have a division between peaceful and non peaceful objectives for space. Rather, we have space missions to help keep the peace and space missions to help increase our ability to live well in peace.

Space Mil Key to Heg/National Security

The ability of the U.S. military to operate in space is key to leadership and national security.

Christopher **Petras**, Chief of Operations Law for United States Space Command, Fall 20**02** (*Journal of Air Law and Commerce*, The Use of Force in Response to Cyber-Attack on Commercial Space Systems—Reexamining "Self-Defense" in Outer Space in Light of the Convergence of U.S. Military and Commercial Space Activities, Pg. 20-21)

The commercial use of outer space is growing rapidly, and on a global scale. In 1996, the annual number of commercial space launches surpassed the number of government launches for the first time. In 1997, the National Defense Panel noted that more than 1,000 satellites were expected to be launched in the decade between 1997 and 2006, representing a total investment of more than one-half trillion dollars. [281] The ability of the United States' military to operate in space is unquestionably seen as vital to the nation's security. In fact, in the National Defense Authorization Act for Fiscal Year 2000, the Congress asked the DoD to "identify the technologies and technology demonstrations needed... to take full advantage of use of space for national security purposes." [282] According to U.S. Space Command, this is likely to entail increased military use of civil, commercial, and international space systems. [283]

At the same time, the strength of American conventional forces and the U.S. military's already extensive and growing use of commercial space technology, makes the possibility of cyber-attack on U.S commercial space systems ever more likely, [284] and protecting commercial space systems becomes more difficult as they continue their global expansion. [285] Therefore, given the importance of commercial space activity and its ever-growing effect on U.S. national security, it is in the interests of the United States, and any other State similarly dependent on its space assets, to establish an effective deterrence regime for cyber-space.

The dependence of the United States on space systems and the capability of hostiles to acquire means to attack these space systems make the defense of our space capabilities necessary and a critical priority for the Armed Forces.

Christopher **Petras**, Chief of Operations Law for United States Space Command, Fall 20**02** (*Journal of Air Law and Commerce*, The Use of Force in Response to Cyber-Attack on Commercial Space Systems—Reexamining "Self-Defense" in Outer Space in Light of the Convergence of U.S. Military and Commercial Space Activities, Pg. 31-32)

n81. See Space Comm'n Report, supra note 1, Executive Summary, at 8 ("The relative dependence of the U.S. on space makes its space systems potentially attractive targets. Many foreign nations and non-state entities are pursuing space-related activities. Those hostile to the U.S. possess, or can acquire on the global market, the means to deny, disrupt or destroy U.S. space systems by attacking satellites in space."); see also Joint Vision 2020, supra note 32, at 30 ('Our ever-increasing dependence on information processes, systems, and technologies adds potential vulnerabilities that must be defended."); NDP Report, supra note 31, at 38 ("[As] military competitors... seek ways to reduce our current advantages [in space]... business will turn to government for protection... [and] as the 'flag follows trade,' our military will be expected to protect U.S. commercial interests.").

Hegemony—US losing advantages in space

US no longer has military advantage with satellites—must invest in other space militarization

Major **Willson** (B.A., C.W. Post College; J.D., Touro School of Law; LL.M., The Judge Advocate General School) is the International & Operational Law Attorney, Army Space Command, Colorado Springs, Co. 20**01** (An Army View of Neutrality in Space: Legal Options for Space Negation, lexis)

Satellites can be used in missile navigation for precision targeting. [36] Prior to the use of satellites for navigation, missiles had to be programmed to follow present navigational path to their targets. Today, Global Positioning System (GPS) components installed in missiles allow them to travel to their targets without relying on preset terrain features, thus avoiding radar and warning systems. [37] This same technology is commercially available to any country. "GPS computer components, available commercially, could be added to the brains of Iranian cruise missiles or boost the accuracy of Chinese ballistic missiles. . . ." [38] Military forces worldwide are buying U.S. GPS technology. [39] Adversaries may be able to use our own GPS to target U.S. troops and **[*184]** weapons. [40] GPS selective availability has now been turned off and all users enjoy the same degree of accuracy--seven meters. [41] In addition, GPS, available to anyone, may soon become accurate to within one or two meters. "Indeed, civil GPS technology is becoming so widely available the GPS location of targets soon will be combined with detailed photographs taken by such commercial remote-sensing satellites as the French SPOT, ..." [42] GPS may also be used by troops and aircraft for position location and to navigate across featureless terrain such as a desert.

New technology in space key to US space dominance

Savit et al, counsel, Blank Rome Comisky & McCauley LLP, **Summer 2002** (PUBLIC INTERNATIONAL LAW: Aviation and Aerospace: Law and Policy Developments The International Lawyer Summer, 2002, lexis)

The relevance of these trends to U.S. national security are significant: the Space Commission Report specifically noted that "mastery of space . . . requires new approaches that reduce significantly the cost of building and launching space systems. *The U.S. will not remain the world's leading space-faring nation by relying on yesterday's technology to meet today's requirements at tomorrow's prices.*" Space Commission Report, *supra* note 38, at 18 (emphasis added).

Hegemony—no space weapons

No space weaponization in the status quo

Charles** Park**, University of Houston Law Center; M.A., New York University; B.A., Columbia University, Spring** 2006 **(Houston Journal of International Law, INCREMENTAL STEPS FOR ACHIEVING SPACE SECURITY: THE NEED FOR A NEW WAY OF THINKING TO ENHANCE THE LEGAL REGIME FOR SPACE, lexis)

Although the realm of outer space has long represented the future of humankind, the development of space technology and the subsequent proliferation of space participants in recent years - encompassing civil, commercial, and military realms - has served notice to the world that the future is rapidly approaching. That said, with the potential weaponization of space on the horizon, 1 policymakers and pundits around the world are quick to acknowledge that the realm of outer space is [*873] the next strategic frontier for international security. 2 Unfortunately, the concept of space security today is still as amorphous as the realm of space is vast. For instance, the public for the most part has failed to differentiate between the militarization and the weaponization of space. 3 Ever since the launching of the first military communication satellites into orbit, the realm of space has been militarized. 4 This reality is evidenced by the fact that militaries around the globe "rely heavily on satellites for command and control, reconnaissance and monitoring, early warning, treaty verification, and navigation with the Global Positioning System (GPS)." 5 While the realm of outer space may be heavily militarized, it is not yet weaponized. 6 Despite this lack of public awareness, the reality of the situation is that the technological superiority and the insecurities of the United States are the true driving forces of the space security dilemma. Ever since the attacks of 9/11, the U.S. government has felt the need to maintain a heightened sense of awareness of the nation's security, or lack thereof, as evidenced by the establishment of the Department of Homeland Security and the accompanying Homeland Security Advisory System. 7 Over the course of President George W. Bush's Administration, the debate conducted in the late 1950s regarding the military uses of space has re-emerged between the hawkish advocates of missile defense and the dovish members of [*874] the space arms control community. 8 On one end of the spectrum, space weapons supporters, primarily from the United States, argue that "vulnerability to ballistic missile attack and [the high degree of] dependence on space for various military operations makes defensive measures necessary ... ." 9 On the other end, members of the arms control community believe the weaponization of space will spiral into a destabilizing arms race making the world less safe and more prone to war. 10 Unfortunately, each side has become so entrenched in the validity of their own ideological belief that the channels of communication between the two sides have been all but closed. 11

Space Mil Key to Heg – Intelligence

Intelligence from military space operations is key to national security.

Department of Defense, **2001** Report of the Commission to Assess United States National Security Space Management and Organization, http://www.defenselink.mil/pubs/spaceintro.pdf, Page 12

Intelligence collected from space remains essential to U.S. national security. It is essential to the formulation of foreign and defense policies, the capacity of the President to manage crises and conflicts, the conduct of military operations and the development of military capabilities to assure the attainment of U.S. objectives. The Department of Defense and the Intelligence Community are undertaking substantial and expensive programs to replace virtually their entire inventory of satellites over the next decade or so. These programs are estimated to cost more than $60 billion during this period.

Space Mil Key to Heg – BMD

Space based BMD and other military capabilities ensures perpetual U.S. hegemony.

Marko **Beljac**, PhD student at Monash University in Melbourne, Australia. October 21, **2003**, Dissident Voice

It should be stressed that these developments ought not be thought of as occurring in isolation; there is a growing link between strategic planning, military expansion and the militarization of space. This all comes under the rubric of "full spectrum dominance" or "escalation dominance" which represents a natural military analogue to the pursuit of perpetual hegemony.

The impetus behind the militarization of space is Ballistic Missile Defense (BMD). Planners recognized very quickly after the fall of the Soviet empire that the main deterrent to US interventionism had shifted from Moscow to the potential targets of attack themselves, most especially through the proliferation of ballistic missiles. Coupled with "weapons of mass destruction" these missiles may pose a credible deterrent to US interventionism in key regions. It is for this reason that one may detect a "deadly connection" between US foreign policy and global WMD proliferation.

As a result strategic planners fear that the US may become "self-deterred"; self-deterrence in the sense that the domestic political costs of interventionism become too high, it should be added. Self-deterrence is not on for a state that seeks to uphold its international dominance by the use of force whenever it takes its fancy. Hence the pursuit of Ballistic Missile Defense programs which are meant to ensure that the world remains a safe stage for the employment of offensive military firepower.

Ballistic Missile Defense is also meant to shore up US hegemony in another important respect. The Bush administration's National Security Strategy of the United States as well as its Nuclear Posture Review state that US military dominance, including strategic nuclear dominance, is necessary in order to "dissuade" any major centre of world power from even thinking about asserting greater regional and global roles. The ultimate expression of this would be the attainment of a global first strike nuclear capability, most especially over China and Russia but also keeping a weary eye over a possible Euro deterrent. Such a capability would ensure that the US would not have a comparative advantage in the use of force but an absolute advantage.

Land-based NMD ineffective

Land based NMD no longer effective vs. new Russian missles.

Scott **Ritter,** January 3, **2005**. John Ritter is a former intelligence office and weapons inspector in the Soviet Union and Iraq. “Rude awakening to missile-defense dream.” Online: http://www.csmonitor.com/2005/0104/p09s02-coop.html. Accessed 7/4/06.

However, the Bush administration's dream of a viable NMD has been rendered fantasy by the Russian test of the SS-27 Topol-M. According to the Russians, the Topol-M has high-speed solid-fuel boosters that rapidly lift the missile into the atmosphere, making boost-phase interception impossible unless one is located practically next door to the launcher. The SS-27 has been hardened against laser weapons and has a highly maneuverable post-boost vehicle that can defeat any intercept capability as it dispenses up to three warheads and four sophisticated decoys.

To counter the SS-27 threat, the US will need to start from scratch. And even if a viable defense could be mustered, by that time the Russians may have fielded an even more sophisticated missile, remaining one step ahead of any US countermeasures. The US cannot afford to spend billions of dollars on a missile-defense system that will never achieve the level of defense envisioned. The Bush administration's embrace of technology, and rejection of diplomacy, when it comes to arms control has failed.

Space Mil Key to Heg/Unipolarity – China

China and other countries are working to militarize space to challenge U.S. supremacy – we must respond.

Larry J. Schaefer, Lt. Col., USAF, August 2002 (Center for Strategy and Technology, Sustained Space Superiority: A National Strategy for the United States, page#20)

Other states have noted that the U.S. dependence on space systems is increasing. For example, Chinese officials have described space as a critical U.S. vulnerability and have identified striking at space systems as being a preferred approach for countries that cannot defeat the United States with conventional weapons. A paper supporting the Commission to Assess United States National Security Space Management documents additional threats that are forcing the United States to shift from a space sanctuary mindset.[i]

China/Russia

China and Russia are working together to take advantage of a weak NASA to outstrip the U.S. in space.

Steven **Siceloff,** Journalist for Florida Today, Sept. 10**, 2001**(Florida Today, Russia-China Deal Makes NASA Uneasy) http://www.space.com/news/russia_china_010910.html

An emerging relationship between Russian and Chinese space agencies has a cash-strapped NASA looking on with concern. The Sino-Russian embrace causes increased suspicions in America of a Chinese government increasingly seen as a threat. Having dealt with the captured spy plane in the spring, the two nations now trade accusations over America's missile shield and Chinese efforts to build up its nuclear forces to defeat it. The strengthening partnership concerns NASA and Washington for several reasons: The Russian Space Agency already has a hard time completing crucial supply spacecraft for the International Space Station. Now it has committed to build spacecraft for China and help train Chinese astronauts, possibly leaving the space station grasping for seconds. NASA has no ties with China, but shares technology and training principles with Russia to effectively operate the station from Moscow and Houston. Analysts suggest Russia could funnel that information to China. Any improvements in Chinese rockets means more reliable and more threatening Chinese nuclear missiles.

"The Chinese space program is a military program using military hardware and overseen by the military," said Charles Vick, space policy analyst for the Washington, D.C.-based Federation of American Scientists.

China and Russia will weaponize space.

Matthew **Mowthorpe**, Phd from University of Hull, The Militarization and Weaponization of Space p.218-219, **2004**

Russia under the guise of the Global Protection System devised by Yeltsin showed interest in the early to mid-1990s in cooperating in an international missile defense system. This system would have included space-based weapons. This shows to a certain degree some acceptance of the weaponizing of space. However, the GPS system was no longer under consideration by 1996 and Russian attitudes to missile defense hardened. It is possible that Russia could operationalize the direct-ascent co-orbit antisatellite capability. It is however difficult to put a timeframe on how quickly they could operationalize this. Since the latter stages of the Cold War and indeed since the collapse of the Soviet Union, Russia has shown some interest in an ASAT capability, of most note being the possible adaptation of the MiG-31 in an ASAT carrier role. Whether this interest will be developed upon is dependent upon the perceived threat Russia feels in response to the United States' missile defense and ASAT plans. China has shown an interest in developing antisatellite weapons, and hence weaponizing space. It is safe to say that the parasitic satellite ASAT is not operational, the microsatellites that are required to carry out this mission are not at the required level of technological maturity. However, it is likely that China has acquired From the former Soviet Union technical know-how to operate the direct ascent method of satellite negation, similar to the co-orbital method of interception. Also, the laser weapon capability of blinding low earth orbit satellites appears to be close to fruition. Certainly there are no technological barriers to China developing such a system. The PRC is certainly seeking to weaponize space. As to what extent this remains a difficult question to answer.

China will inevitably militarize

China is inevitably going to militarize space with advanced weaponry if the US doesn't step up

Larry M. **Wortzel,** Doctor, October 3, **2003** (Web Memo, China and the Battlefield in Space)

The newest battlefield for China will be in space. From a defensive standpoint China is seeking to block the United States from developing its own anti-satellite weapons and space-based ballistic missile defense systems. Beijing and Moscow, through diplomatic channels, have introduced a draft United Nations Treaty that would ban conventional and non-nuclear weapons in space. Meanwhile, from an offensive standpoint, China is developing its own weapons. The People's Liberation Army (PLA) is experimenting with directed energy weapons that can kill satellites and in theoretical research is considering particle beam weapons that can engage missiles in flight. The Chinese military is also considering the use of "piggy-back satellites" and "micro-satellites" that can be used as kinetic energy weapons to destroy enemy satellites or spacecraft, or can attach themselves to enemy satellites to jam them.

China's leadership views militarization as an inevitability.

Both the US and China know that China will militarize space, at the expense of the US

Larry M. **Wortzel,** Doctor, October 3, **2003** (Web Memo, China and the Battlefield in Space)

Chinese leaders probably view ASAT (anti-satellite) systems and space-based missile defenses as inevitabilities," according to the latest assessment of the Chinese military by the United States Department of Defense. The DoD, according to this report, believes that China could field a direct-ascent anti-satellite system in the next two to six years. There is also ample evidence from Chinese scientific and military journals that the PRC is developing maneuvering micro-satellites that can attach themselves to enemy satellites and destroy of jam them, or could be used to collide with and destroy enemy satellites.

China can and will weaponize space

Matthew **Mowthorpe**, Phd from University of Hull, The Militarization and Weaponization of Space p.3**, 2004**

China has shown an interest in developing antisatellite weapons, and hence weaponizing space. It is safe to say that the parasitic satellite ASAT is not operational, the microsatellites that are required to carry out this mission are not at the required level of technological maturity. However, it is likely that China has acquired from the former Soviet Union the technical know-how to operate the direct ascent method of satellite negation, similar to the co-orbitall method of interception. Also, the laser weapon capability of blinding low-earth orbit satellites appears to be close to fruition. Certainly there are no technological barriers It, China developing such a system. The PRC is certainly seeking to weaponize space. As to what extent this remains a difficult question to answer.

China views US as vulnerable

China regards space as a sign of US weakness that it intends to exploit.

Phillip C. **Saunders** senior research professor at the National Defense University **2004** adAstra China's Future in Space: Implications for U.S. Security, http://www.space.com/adastra/china_implications_0505.html

Chinese strategists view U.S. dependence on space as an asymmetric vulnerability that could be exploited. As one defense analyst wrote: "for countries that can never win a war with the United States by using the method of tanks and planes, attacking the U.S. space system may be an irresistible and most tempting choice." Chinese strategists have explored ways of limiting U.S. use of space, including anti-satellite (ASAT) weapons, jamming, employing lasers to blind reconnaissance satellites, and even using electro-magnetic pulses produced by a nuclear weapon to destroy satellites. A recent article highlighted Iraq's efforts to use GPS jammers to defeat U.S. precision-guided munitions.

AT: China only has peaceful programs

The Chinese are pursuing militarization under the guise of civilian programs – gender paraphrased.

Joan **Johnson-Freese** Naval War College, **2003**, http://www.nwc.navy.mil/press/review/2003/Summer/art2-su3.htm

If not, the reason the Chinese are pursuing a [personned] manned space program may be to draw attention from its military space activities, which will clearly benefit from the dual-use nature of the technology being developed. The July 2002 *Annual Report on the Military Power of the People's Republic of China*, published by the U.S. Department of Defense, stated, "While one of the strongest immediate motivations for this [China's manned space program] appears to be political prestige, China's [personned] manned space efforts almost certainly will contribute to improved military space systems in the 2010–2020 time frame."[6] Global recognition of the increasingly important role of space in military operations began with the unofficial proclamation of the Gulf War as "the first space war," and it has grown steadily since.[7] Under a worst-case scenario, the Chinese manned efforts are merely a Trojan horse. It has already been suggested, for example, that Chinese leaders may see potential military value in Shenzhou as a reconnaissance platform.[8] Chinese government officials have, after all, included national defense in the stated aims of their space program.

AT: China doesn't have the tech

China has indigenous space militarization capability.

Phillip C. **Saunders** senior research professor at the National Defense University **2004** adAstra China's Future in Space: Implications for U.S. Security, http://www.space.com/adastra/china_implications_0505.html
Efforts to exploit space for military purposes, and strategic incentives to target U.S. space assets, have put China on a collision course with a U.S. doctrine that emphasizes protecting U.S. space assets and denying the use of space by adversaries. Whether a Sino-American space race can be avoided will depend on strategic decisions by both sides and the priority placed on space control versus commercial, scientific and other military applications of space. A key question is whether the United States can prevent potential adversaries from using space for military purposes without making its own space assets more vulnerable. United States doctrine envisions using a range of diplomatic, legal, economic and military measures to limit an adversary's access to space. However China will almost certainly be able to use indigenous development and foreign technology to upgrade its space capabilities. Non-military means may limit Chinese access to some advanced technologies, but they will not prevent the PLA from using space.

China has advanced technology and space personnel capabilities.

Phillip C. **Saunders** senior research professor at the National Defense University **2004** adAstra China's Future in Space: Implications for U.S. Security, http://www.space.com/adastra/china_implications_0505.html
China's October 2003 manned space flight highlighted its dramatic achievements in space technology. Although Chinese space technology is not state-of-the-art, China differs from other developing countries by having a space program that spans the full range of capabilities from satellite design to launch services. China builds satellites on its own, and is involved in international commercial and scientific collaborations with Europe, Russia and Brazil. The People's Republic of China has a robust commercial satellite launch industry capable of launching payloads into geosynchronous and polar orbits. Its space program is also notable for the movement of personnel and technology between the civilian and military sectors.

Space Mil Key to Heg/Unipolarity – ESA

The ESA is expanding its space military capabilities in response to the U.S.

Neil **Kingsnorth**, British CND/Yorkshire CND, June **2004** "Fighting for Space: The Developing Threat of Space Weapons" Online. http://cndyorks.gn.apc.org/yspace/ffs.pdf. Accessed 7/3/06.

In a response to the recent U.S. space plans, European Research Commissioner Philippe Busquin stated: "Europe is now moving towards its own Security Research programme. … The fact is that Europe has long been handicapped in this area due to the fact that security has been a 'no-go' area for us. Space will clearly be a major contributor and benefactor as we move into this important area of research."

Heg Good

US hegemony is the best arrangement for the world, it decreases violence and disorder while increasing democracy and economic growth

Robert **Kagan**, senior associate at the Carnegie Endowment for International Peace. Foreign Policy, Summer **1998,** Benevolent Empire.

And neither of them, one suspects, is very seriously intended. For the truth about America's dominant role in the world is known to most clear-eyed international observers. And the truth is that the benevolent hegemony exercised by the United States is good for a vast portion of the world's population. It is certainly a better international arrangement than all realistic alternatives. To undermine it would cost many others around the world far more than it would cost Americans —- and far sooner. As Samuel Huntington wrote five years ago, before he joined the plethora of scholars disturbed by the "arrogance" of American hegemony: "A world without U.S. primacy will be a world with more violence and disorder and less democracy and economic growth than a world where the United States continues to have more influence than any other country shaping global affairs."

The unique qualities of American global dominance have never been a mystery, but these days they are more and more forgotten or, for convenience' sake, ignored. There was a time when the world clearly saw how different the American superpower was from all the previous aspiring hegemons. The difference lay in the exercise of power. The strength acquired by the United States in the aftermath of World War II was far greater than any single nation had ever possessed, at least since the Roman Empire. America's share of the world economy, the overwhelming superiority of its military capacity —- augmented for a time by a monopoly of nuclear weapons and the capacity to deliver them -— gave it the choice of pursuing any number of global ambitions. That the American people "might have set the crown of world empire on their brows," as one British statesman put it in 1951, but chose not to, was a decision of singular importance in world history and recognized as such. America's self-abnegation was unusual, and its uniqueness was not lost on peoples who had just suffered the horrors of wars brought on by powerful nations with overweening ambitions to empire of the most coercive type. Nor was it lost on those who saw what the Soviet Union planned to do with its newfound power after World War II.

Space Mil Key to stop Doom Rock

Successful U.S. space mil key to stop the doom rock.

Robert Roy **Britt,** Sr. Science Writer, 14 February **2002** (Space.Com "Space-Based Missile Defense Needed to Thwart Asteroid Attacks" <http://www.space.com/scienceastronomy/solarsystem/deflection_asteroids_020214.html>)

Regardless of any harmonious cooperation between the world's peoples, serious plans to protect the planet are not likely to hatch soon. Unless we get hit.

Benny Peiser, a researcher at Liverpool John Moores University in the UK, monitors the social, political and scientific issues surrounding the asteroid threat.

"I doubt whether there will be any international initiatives, let alone consensus on planetary defense, until we have witnessed another Tunguska-type cosmic disaster," Peiser told SPACE.com.

Tunguska is the name given to a 1908 explosion of a comet or asteroid about five miles above the surface of Siberia. The event flattened hundreds of thousands of forested acres. No one died, because no one lived there. A similar event over a populated area could easily kill thousands of people.

Peiser figures that a plan like Maccone's would have to be led by the U.S. Military, which already sees space as a necessary strategic outpost.

The current response to terrorism, Peiser said, "has led the U.S. to significantly increase the budget for space-based defense paraphernalia which inadvertently enhances the prospects for advanced planetary defense technologies."

Space Based NMD Key to stop Doom Rock

Space based missile defense key to deflect asteroid.

Robert Roy **Britt,** Sr. Science Writer, 14 February **2002** (Space.Com "Space-Based Missile Defense Needed to Thwart Asteroid Attacks" <http://www.space.com/scienceastronomy/solarsystem/deflection_asteroids_020214.html>)

Earth is little more than a sitting duck in a cosmic shooting gallery, the scientists tell us. But that doesn't mean we can't shoot back. If an asteroid is ever found to have our planet in its sights, a carefully aimed missile can simply knock the rock off course.

There's one little problem. It's hard to deflect something that's coming right at you.

Any boxer understands this. A slight bit of energy applied to a punch in the right way can turn a roundhouse into a harmless glancing blow. But if you try and stop an upper cut by driving your chin directly into it, you'll go down for the count.

Claudio Maccone at the Center for Astrodynamics in Turin, Italy, has a boxer's eye for asteroids, and he's developed what he claims is the best plan for protecting Earth.

Put missiles in space, Maccone says, and hit the asteroids at an angle.

Solvency—space solves asteroids

Space militarization allows us to deflect asteroids

Scott **Barrett**, **2006**, The University of Chicago, Chicago Journal of International Law, lexis

Several options are currently being investigated, including the launch of a "space tug" that would attach itself to an approaching asteroid and push the asteroid away from a collision course with the Earth. 30 (If the asteroid were distant enough, a slight nudge would be sufficient.) This possibility is not confined to the realm of science fiction. In 2001, NASA's NEAR Shoemaker spacecraft landed gently on the surface of Eros, an asteroid 196 million miles from the Earth, even though the spacecraft was not designed for this purpose. [31] More recently, on July 4, 2005, NASA's Deep Impact spacecraft launched an "impactor" spacecraft that successfully collided with Comet Tempel 1. This impactor was not forceful enough to appreciably change the comet's orbit, but a larger device, designed specifically for this purpose, could. [32]

Defensive measures from presence in space solve asteroids

Evan R. **Seamone**, J.D., University of Iowa College of Law; M.P.P. and B.A., University of California, **2004** (Georgetown International Environmental Law Review, "The Precautionary Principle as the Law of Planetary Defense: Achieving the Mandate to Defend the Earth Against Asteroid and Comet Impacts While There is Still Time," lexis)

Based on predicted harm to earth populations, statistical analyses of the likelihood of another significant impact, and continuing discovery of large asteroid craters across the globe, international policymakers have concluded that a real threat will require international cooperation, and that decisions made in the near-term may have consequences for many generations to come. [12] Ultimately, governments can increase the chances of limiting or eliminating threats to an impact zone by detecting such threats long before the impact is due. With enough time to mount defensive measures from a space station or from earth, governments will be able to deflect or destroy the oncoming object. However, even if time is limited or affirmative defensive measures fail, agencies can secure life and property by effectively preparing local governments and their citizens to evacuate and survive under the difficult and undesirable conditions.

Asteroid threats or real—must invest in space militarization to deflect attack

Sean R. **Mikula**, Lawyer and former Military Intelligence Officer,**2001,**(Blue Helmets in the Next Frontier: The Future is Now,The Georgia Journal of International and Comparative Law, lexis)

Earth-launched ballistic missiles and asteroids (or comets) on a collision course with Earth pose a threat that is understandably transparent to most world citizens. The possibility of an asteroid strike probably sounds like little more than fodder for Hollywood, rather than an imminent threat to be taken seriously by average citizens. Governments, however, have responsibilities that transcend those of regular citizens. The fact is that these threats are real; so is the potential for mitigation through some form of military counter-attack from space, such as that proposed as a function of the ISF. The following discussion analyzes these threats.

Space Mil Inevitable – The U.S. Must Lead

Space militarization and conflict is inevitable – the United States must compete to win.

Michel **Krepon** and Christopher Clary, Writers for the Henry L. Stimson Center, **2003**, (The Henry Stimson Center, Space Assurance or Space Domination, page #2)

If war-fighting in or from space is inevitable, it then follows that the United States should have the panoply of military capabilities not just to deter warfare in the heavens, but also to actively defend satellites in orbit that are essential for the conduct of U.S. military operations on the ground. "Space control," however, is a far more demanding pursuit. It requires the protection of satellites against attacks in space, as well as the ability to carry out offensive strikes, whether from platforms orbiting the earth or from those on the ground, sea, and air. Moreover, if the weaponization of space is a virtual certainty, it also follows that arms control efforts, whether broadly or narrowly defined, to foreclose this competition are without merit. If such a competition is foreordained, America should compete to win.

Space Mil Inevitable – Bush Will Militarize

Bush plans a dramatic militarization of space.

Ciarocca 1/20/04, Research Associate at the World Policy Institute [Michelle, "Bush's Space Odyssey," *Commondreams.org*, www.commondreams.org]

Bush's vague plan to "gain a new foothold on the Moon" and send astronauts to Mars, may seem benign, even visionary. Speaking at NASA headquarters, Mr. Bush explained, "mankind is drawn to the heavens for the same reason we were once drawn into unknown lands and across the open sea." However, if we look beyond the rhetoric, there is cause for concern. Anyone familiar with recommendations from a commission on military uses of space chaired by Defense Secretary Donald Rumsfeld, before his appointment, or the U.S. Space Command's strategic planning documents, is raising eyebrows.

The Commission to Assess U.S. National Security Space Management and Organization was released in January of 2001. Chaired by Rumsfeld until his appointment as Bush's Secretary of Defense, the commission claimed that the U.S. is at risk of a "space Pearl Harbor" due to a lack of "celestial" military preparedness. It also made a number of concrete recommendations ranging from the need to develop new technologies to defend U.S. space assets, to ensuring the U.S. can deploy weapons in space. The Commission's findings and recommendations are echoed in the U.S. Space Command's strategic master plan, posted on its web site, which lays out the overall goal of U.S. domination of space to protect U.S. interests and investments. The document warns, "we cannot fully exploit space until we control it."

Although President Bush has made no mention of the military implications of his new proposal for a Moon base and a Mars mission, the President's sudden emphasis on space could mark the first step down a dangerous path. The Space Command's strategic plan clearly states, "this capability (space) is the ultimate high ground of U.S. military operations. Air Force doctrine views air, space, and information as key ingredients for dominating the battlespace and ensuring superiority." As Bruce Gagnon, director of Global Network Against Nuclear Power and Weapons in Space, aptly noted "there is legitimate reason to question the plan for the establishment of bases on the moon. The military has long eyed the moon as a potential base of operations as warfare is moved into the heavens."

What also needs to be discussed is the fact that no fewer than eight Pentagon military contractors were represented on Rumsfeld's space commission. Companies such as Science Applications International Corporation (SAIC), the Aerospace Corporation, Litton Industries, Boeing Corporation, Northrop Grumman and Alliant Techsystems, were represented on the commission -- all companies that stand to benefit from the commission's findings. In addition to this previous commission's recommendations, Bush has decided to form a new presidential commission to look at how to make his vision a reality. Heading this commission will be Edward C. "Pete" Aldridge Jr., a former Air Force secretary, AND current board member of Lockheed Martin -- one of the nation's top aerospace and military contractors.

Militarization of space under Bush is inevitable.

Ciarocca 1/20/04, Research Associate at the World Policy Institute [Michelle, "Bush's Space Odyssey," *Commondreams.org*, www.commondreams.org]

Meanwhile, over at the Air Force, the assistant secretary in charge of acquiring military space assets as part of Rumsfeld's new emphasis on space as a place for exerting strategic dominance is none other the Peter B. Teets, a former chief operating officer at Lockheed Martin. On at least one occasion, Teets has told gatherings of corporate, military, and Pentagon officials that the weaponization of space is inevitable. It may or may not be inevitable, but if representatives of companies who stand to profit from it continue to be put in charge of our space policy, the likelihood of an arms race in space will be a lot higher. The Bush administration's heavy reliance on defense executives with interests in military space ventures calls into question the objectivity of the panel's recommendations. The true intent of President Bush's rallying cry to further space exploration could simply be in the name of science, but these issues need to be seriously discussed beforehand.

Space mil inevitable

Space militarization is inevitable

Sean R. **Mikula**, Lawyer and former Military Intelligence Officer,**2001,**(Blue Helmets in the Next Frontier: The Future is Now,The Georgia Journal of International and Comparative Law, lexis)

The purpose of this note is to evaluate the merits of an international, collaborative military effort in space. Such a proposition might at first seem counter intuitive. It is a proposal that calls for the increased militarization [3] of space as a method by which to bring about peace. However, this is not so surprising if one accepts the inevitability of the full militarization of space. As noted by author, Bruce Hurwitz, "[t]he militarization of outer space was no doubt inevitable. Man has militarized every region which he has been able to **[*534]** function in (excluding Antarctica)." [4] In light of the inevitable militarization of space, this proposed international collaboration serves as a pragmatic vehicle with which to at least control the inevitable escalation of military activity in space.

Demilitarization of space is impossible

Nina **Tattenwald**, Prof. of Int. Studies at Brown University, Summer **2004** (The Yale Journal of International Law, Law Versus Power on the High Frontier: The Case for a Rule-Based Regime for Outer Space, lexis)

For the foreseeable future, a regime promoting a purely nonmilitary approach to outer space would likely be purely aspirational, lacking clear definitions or compliance measures, since the dominant spacepowers are unlikely to agree to a specified regime that eliminates passive military activities. Thus, such a regime may have little effect on the activities of the spacepowers, leading to what many non-spacefaring nations would perceive as a discriminatory regime. 273 Though it may remain the aspiration of some groups of states, total demilitarization of space appears unlikely.

Space is militarized now

Nina **Tattenwald**, Prof. of Int. Studies at Brown University, Summer **2004** (The Yale Journal of International Law, Law Versus Power on the High Frontier: The Case for a Rule-Based Regime for Outer Space, lexis)

With regard to "peaceful uses," the current legal regime consists of a set of modest limitations regarding military activity in the vacuum of near-earth space, and complete nonmilitarization of celestial bodies such as the Moon. Space has always been militarized to some degree. Although the international community has declared that outer space should be reserved for "peaceful purposes," the space powers have interpreted this to permit "passive" or military support activities such as observation, surveillance, communications, and detection of nuclear explosions on Earth. 32 The language of the major treaties was carefully worded so as not to prohibit the passage of nuclear ballistic missiles through space. 33 From the beginning, U.S. space programs have been primarily military, not civilian or scientific, in nature. 34

Space Mil Key to Get off the Rock

Effective military leadership key to space exploration.

Richard **Wall**, social sciences expert, Feb. 15 **2003** (LewRockwell.com, Dreaming Space Power-Paving the Road to 20th Century Warfare, http://www.lewrockwell.com/orig3/wall9.html)

The military applications of space exploration have been brought into much sharper focus over the last 2½ years. New York professor Karl Grossman, who has written extensively on the dangers of the use of nuclear power in space, wrote in an article in December 2000 for example, how US preparations to wage war in and from space would be getting a huge boost with the assumption of power by George W. Bush and Richard Cheney. But these concerns are not new. There has always been something of a military flavour to space exploration, even in the early years when 'superpower rivalry' was expressed in the 'space race.' Soothing noises were made about the value of scientific experiments and the aspirations of all humanity, but the underlying reality was, and is, that it is in the nature of nationalist-statist undertakings constantly to be seeking a power advantage over real or imagined rivals. This has historically been done through the combination of technological superiority and territorial control, which expanded to aerial control (command of the air), and now increasingly is seen as 'spatial' or 'universal' control (command of space). Greater emphasis on the military usefulness of space programs would be consistent with a bureaucratic tussle scenario in which, sooner rather than later, the monies spent on the ageing shuttle (ineffective in terms of actual weaponry although still militarily useful for tests of ancillary equipment such as long-range cameras), could be re-allocated to funding some faster and sexier form of rocket propulsion, thereby facilitating the aggressive military aim of the "conquest of space" in the future.

*****Get off the Rock!*****

Overpop and Social Security

Colonization solves overpopulation and social security

Space exploration will solve overpopulation and the collapse of social security.
Savopulos in **99** (Dr. Mihail, *Space Research and Technology,* April 11th 1999, http://aetos.it.teithe.gr/~msav/spacee.html)
Today the problems we face are similar. The population of the planet is increasing drastically. Despite the modern means of production and distribution of the food and the goods, there will be a moment that our planet will no more be able to feed the human population. Solutions such as the stabilization or the reduction of the population will not work since they will cause the collapse of the social security system (pensions is well known that only work if two working people pay for one pensioner) and generally of the economy. Thus, the only solution is the colonization of space. In order for these ideas to be acceptable, I have to remind you here that Julius Vern in his books has foreseen the space trips and the first exploration of the moon, and these predictions have already happened, much earlier than expected. The scientific community today has started the exploration of the two planets closer to Earth, that is Mars and Venus. It is investigating if there is live there, or if there can be live in the future, so that human population in the next century can colonize these planets. Today the beginning of the space travel is a reality.

General Extinction

Megadisasters

A megadistaster is coming—the world is not prepared

Evan R. **Seamone,** B.A. Sociology, University of CA, LA. March **2002** (*87 Iowa L. Rev. 1091*, lexis)

Owing to political lobbying and cost benefit analyses in democratic societies, public planners will prioritize their responses to threats based on their familiarity with the risks posed. [22] With a prompt and substantial allocation of resources, planners can theoretically measure the effectiveness of these commitments and increase the benefit society derives from the improvements they implement. [23] Unfortunately, this reasoning ignores the fact that megadisasters can, and do, occur. [24] Examples of these rare but possible devastating crises include the Black Death of the Middle Ages, [25] the Mount Vesuvius eruption in Italy in Roman Times, [26] the New Madrid earthquake that "ripped the Mississippi Valley apart" in the early nineteenth century, [27] the potential collapse of the Cumbre Vieja volcano in the Canary **[*1097]** Islands that could trigger 150-foot tsunami waves reaching the U.S. East Coast, Brazil, and portions of England, [28] or the potential mutation of the Auto Immune Deficiency Syndrome (AIDS) into an airborne virus. [29] In the aftermath of these possible but unpredictable crises, the international community would have to mitigate harm in entirely new ways. The question becomes one of whether planners are responding effectively to the potential repercussions of a crisis when they cast doubt on the likelihood of the occurrence and such doubt results in a limited allocation of resources. [30] With defeatist logic prevailing in legislative and organizational circles, it is wrong to suggest that planners are effectively working to "mitigate" the threats of nontraditional megadisasters.

Death ‘Stroid

Asteroids—asteroids coming

The next asteroid will be the biggest yet

Richard A. **Posner** is a judge on the United States Seventh Circuit Court of Appeals, a senior lecturer at the University of Chicago law school, 6 Chi. J. Int'l L. 511, Chicago Journal of International Law Winter, 20**06** Chi. J. Int'l L. 511, lexis

The asteroid that exploded above Siberia in 1908 with the force of a hydrogen bomb might have killed millions of people had it exploded above a major city. Yet that asteroid was only about two hundred feet in diameter, and a much larger one (among the thousands of dangerously large asteroids in orbits that intersect the earth's orbit) could strike the earth and cause the total extinction of the human race through a combination of shock waves, fire, tsunamis, and blockage of sunlight wherever it struck. Other catastrophic risks, besides earthquakes such as the one that caused the recent tsunami, include natural epidemics (the 1918-1919 Spanish influenza epidemic killed between twenty and forty million people), nuclear or biological attacks by terrorists, certain types of lab accidents (including one discussed later in this Article), and abrupt global warming. The probability of catastrophes resulting, whether or not intentionally, from human activity appears to be increasing because of the rapidity and direction of technological advances.

U.N focus on asteroids proves the threat is real

Seamone, Evan R. J.D. University of Iowa College of Law; M.P.P. in Public Policy, B.A. Sociology. Summer **2003**. (The Duty to "Expect the Unexpected": Mitigating Extreme Natural Threats to the Global Commons Such as Asteroid and Comet Impacts with the Earth, lexis)

It is no shock that the primary focus of the United Nations, in shaping a natural impact mitigation strategy, is space - the source of the natural impact threat. Consequently, it is the law of outer space that dominates the U.N.'s policy and legal parameters. In July 1999, the U.N. Conference on the Exploration and Peaceful Uses of Outer Space adopted three key declarations addressing natural impacts within its "nucleus of a strategy to address global challenges in the future": (1) To improve the scientific knowledge of near and outer space by promoting cooperative activities in such areas as astronomy, space biology and medicine, space physics, the study of near-Earth objects and planetary exploration;(2) to improve the international coordination of activities related to near-Earth objects, harmonizing the worldwide efforts directed at identification, follow-up observation and orbit prediction, while at the same time giving consideration to developing a common strategy that would include future activities related to near-Earth objects; and (3) to protect the near and outer space environments through further research on designs, safety measures and procedures associated with the use of nuclear power sources in outer space.

Asteroids—asteroids coming

An asteroid collision is coming

Evan R. **Seamone,** B.A. Sociology, University of CA, LA. March 2002 (*87 Iowa L. Rev. 1091*, lexis)

You would feel as though you were in an oven turned on to broil. An enormous hole has been gouged in the Earth. Then, finally, the sky would turn black, absolutely, completely black - everywhere all over the world. [1] At first glance, with the horrors of the recent World Trade Center attacks fresh in their memory, readers might interpret this apocalyptic prediction as an attempt by the media to raise consciousness about the possibility of a nuclear bombing by terrorists. [2] Based on the public's rush to purchase survival equipment in response to the media's coverage of the events following September 11, 2001, Americans would probably treat the prediction quite seriously. [3] In reality, however, the prediction addresses **asteroid** or comet collisions with the Earth.Because bombardments of the Earth by objects from space are potentially as unpredictable and dangerous as terrorist attacks, a key concern is whether public reactions to the prediction above would be similar. [4] In this instance, simply substituting a different type of disaster would probably result in an entirely different response. [5] Denial and **[*1094]** avoidance would be the most likely outcomes. [6] Inevitably, some people would scoff at the notion, just as they did when astronomers predicted the likelihood of similar Earth collisions in 1998 and in 2000. [7] On both occasions, notwithstanding the supposed certainty of the estimates, dust from unsold survival gear drifted across the empty aisles of military surplus stores like tumbleweeds through the streets of a ghost town. [8] Should policymakers and emergency preparedness personnel be concerned that members of the public discriminate in their reactions to different types of disaster? This Note explains why the international public, and more precisely lawmakers, must treat infrequent, but extremely dangerous, natural disasters more seriously. It argues that nations are violating international law when they neglect the mitigation of exotic transboundary crises. It highlights how the repercussions from such harmful events cannot be as easily addressed by routine procedures that nations typically employ when responding to more commonplace disasters. [9] Ultimately, these generic measures have created a false sense of security. [10]

An asteroid will collide with earth

Evan R. **Seamone**, J.D., University of Iowa College of Law; M.P.P. and B.A., University of California, **2004** (Georgetown International Environmental Law Review, “The Precautionary Principle as the Law of Planetary Defense: Achieving the Mandate to Defend the Earth Against Asteroid and Comet Impacts While There is Still Time”, lexis)

Although the topic of asteroids and comets striking the earth (natural impact) has caused innumerable skeptics to roll their eyes condescendingly, 1 the public came very close to knowing the horror of an impending asteroid disaster first-hand on January 13, 2004. On the very day before President George W. Bush was expected to deliver a speech on the new American space policy, asteroid threat detection experts contemplated issuing a warning that an asteroid named 2004 AS1 could collide with the Earth within 36 hours. 2 Unlike other recent "near misses," this one prompted agencies like the National Aeronautics and Space Administration (NASA) to consider their limitations in responding to a short-notice asteroid threat and their subsequent responsibility to notify more capable operational agencies. 3 For the first time, scientists were forced to answer the difficult questions that they had previously entertained only as brainteasers

AT: Deflection

We can't prevent an asteroid collision

Evan R. **Seamone,** B.A. Sociology, University of CA, LA. March **2002** (*87 Iowa L. Rev. 1091*, lexis)

Although government agencies have developed and funded plans to mitigate threats posed by objects from space, these plans, by themselves, fail to demonstrate effective preparation. Astronomers are theoretically "mitigating" interplanetary collisions by tracking objects likely to come within the Earth's orbit. Since at least 1998, the National Aeronautics and Space Administration (NASA) has charted the course of many hundreds of Near-Earth-Orbiting Objects (NEOs). [67] Other nations with available resources have also committed significant (though less) funding toward cataloguing threatening space objects using high-powered telescopes. [68] These efforts seem to convey a sense of commitment to global preparedness. Closer scrutiny, however, reveals a complete lack of disaster response measures to deal with post-sighting conditions. [69] Plans are confused by unresolved international law: who gets evacuated and in what order? Who distributes resources? Who controls the flow of refugees across borders? The questions are infinite because the threat is inestimable. [70] In many cases, scientists do not have the training or knowledge to provide useful guidance. [71] **[*1106]** Current efforts at cataloguing potential risks of Earth impacts also fail to address technological inadequacies that make post-sighting response measures a necessity. Notwithstanding tracking efforts, some **asteroids** and comets will elude technology because some space objects cannot be spotted. [72] Even when sightings occur, response measures are limited because international law is unclear about the types of actions nations can take to defend themselves. [73] Moreover, limitations on the amount of time nations **[*1107]** require to effectively combat a probable strike make a nation's ability to spot an approaching space body far less important than a nation's ability to react to one. [74] Additionally, astronomers' impact predictions are fraught with error. Scientists twice startled the public in the last few years by predicting impacts within the next ten to forty years, [75] only to rescind both estimates after mere days had passed. [76] Without answering serious questions that perhaps only the law can resolve, governments will fail in their efforts to mitigate Earth collisions. The science of global preparation is plagued by imprecision, raising troubling questions about whether nations can effectively prepare for a threat they cannot accurately predict. Should they create new organizations, conduct extensive educational programs, or begin preparing evacuations on an international scale? Or, should they first wait for conclusive evidence that the Earth is in danger? Governments have thus far adopted the latter approach. [77] To date, efforts to "mitigate" **asteroid** or comet threats have amounted to nothing more than cataloguing objects in space. Because astronomers admit that certain space threats that can elude their current efforts could devastate the Earth within minutes, nations need to coordinate their efforts beyond mere stargazing. [78]

The threat of an asteroid strike is very dangerous because they are not preceded by indicators that alert us and they might not be able to prevent.

Seamone, Evan R. J.D. University of Iowa College of Law; M.P.P. in Public Policy, B.A. Sociology. Summer **2003**. (The Duty to "Expect the Unexpected": Mitigating Extreme Natural Threats to the Global Commons Such as Asteroid and Comet Impacts with the Earth, lexis)

This Article addresses "extreme" natural threats that endanger multiple countries simultaneously, in particular the threat of "natural impact" - i.e., the threat of asteroids or comets striking the Earth. These threats are particularly dangerous because they are not preceded by the many indicators that enable law enforcement agencies to prevent acts of terrorism, such as "chatter," the transfer of large sums of money, and odd travel patterns. Often, natural threats cannot be prevented, which means that equal, if not greater, emphasis must be placed on post-disaster response. Consequently, the prototype for identifying the duties of governments to plan for and act in the face of massive harm cannot be the traditional, isolated natural disaster, such as the tornado, earthquake, or typhoon, which does not necessarily involve an international response.

Can’t stop the doom rock

No way to stop a killer asteroid.

Sydney Morning Herald. July 3, 2006. (Comet Could Hit Earth)

Mr. McNaught said a collision with Earth could wreak much more damage than the Hiroshima atomic bomb. "There would be nothing left standing within a close vicinity. Everybody would be killed. He said it was unfortunate that asteroids received such "bad press", and that movies such as *Armageddon* were unrealistic. "They've given the impression that there's something that we can do about it in the short term, that all we have to do is send up Bruce Willis and everything will be fixed," Mr. McNaught said. "But the reality is if the exact scenario happened ... we could do nothing about it."

Can't stop the doom rock – no preparation

A catastrophic impact is likely and we are not prepared.

Robert Roy **Britt,** Sr. Science Writer, 14 February **2002** (Space.Com "Space-Based Missile Defense Needed to Thwart Asteroid Attacks" <http://www.space.com/scienceastronomy/solarsystem/deflection_asteroids_020214.html>)

Some 587 large, potentially threatening asteroids have been found near Earth. All are bigger than 1 kilometer (0.6 miles), the threshold for what most researchers agree could cause global catastrophe. None of these rocks is on course to hit Earth. But there are about 500 more that have yet to be found, according to leading estimates.

Most of the remaining large asteroids should be detected by the end of the decade, NASA experts say. If one is ever determined to be a serious threat, chances are good there will be a decade or more to deal with it.

But thousands upon thousands of smaller rocks, each capable of destroying a city or even a state, will likely take much longer to find. Warning time might be just days or weeks. In one case last month, an asteroid that could have caused significant damage, and which passed Earth just twice the distance to the Moon, was first spotted barely a month before it flew by.

While a lot of energy and money goes into finding asteroids, almost no resources have been devoted to developing a plan of action to deal with one that could wipe out civilization.

AT: Low probability

The risk of a massive strike shouldn't be evaluated based on frequency but the possibility of a massive impact.

Chapman, **Clark** R.Ph D from the Earth and Planetary Sciences Dept. of MIT. 4 March **2004** (The hazard of near-Earth asteroid impacts on earth, http://www.b612foundation.org/papers/Chapman_hazard_EPSL.pdf)

Cosmic projectiles rain down on us, ranging from the frequent flashes of meteoroids, to less frequent meteorite-producing bolides, to the even less common A-bomb level upper-atmospheric explosions recorded by Earth-orbiting surveillance satellites, to the historically rare Tunguska-level events, and finally to the still rarer but potentially extremely destructive impacts of bodies >100 m diameter, which must be considered not in terms of their frequency but instead in terms of their low but finite probabilities of impacting during the timeframe that is important to us, our children, and our grandchildren—the 21st century.

Even if the probability of an asteroid is low it still requires careful policy considerations

Richard A. **Posner** is a judge on the United States Seventh Circuit Court of Appeals, a senior lecturer at the University of Chicago law school, 6 Chi. J. Int'l L. 511, Chicago Journal of International Law Winter, 20**06** Chi. J. Int'l L. 511, lexis

Costs, moreover, tend to be inverse to time. It would cost a great deal more to build an asteroid defense in one year than in ten years because of the **[*525]** extra costs that would be required for a hasty reallocation of the necessary labor and capital from the current projects in which they are employed. And this inverse relationship between costs and time would also apply to other crash efforts to prevent catastrophes. Placing a lid on current expenditures would have the incidental benefit of enabling additional expenditures to be deferred to a time when, because more will be known about both the catastrophic risks and the optimal responses to them, considerable cost savings may be possible. The case for such a ceiling derives from comparing marginal benefits to marginal costs; the latter may be sharply increasing in the short run.To conclude, catastrophic risks -- in the sense of low-probability events that if they occur will inflict catastrophic harm -- are, despite their low probability, well worth the careful attention of policymakers. There are, however, a variety of psychological and political obstacles to such attention. In addition, there is a sense that the uncertainties surrounding catastrophic risks are so great as to make such risks analytically intractable. My purpose in this Article has been to contest that sense. There are a variety of useful analytical techniques for dealing with catastrophic risks; greater use of those techniques would enable a rational response to those risks.

Impats – Kills 100,000s

A small asteroid would kill at least 100,000s of people

Seamone, Evan R. J.D. University of Iowa College of Law; M.P.P. in Public Policy, B.A. Sociology. Summer **2003**. (The Duty to "Expect the Unexpected": Mitigating Extreme Natural Threats to the Global Commons Such as Asteroid and Comet Impacts with the Earth, lexis)

While the date of the next asteroid or comet disaster remains unknown, the potential for serious harm from these objects cannot be denied. [10] Although the much glamorized "global killer" (perhaps as large as ten kilometers in diameter [11]), which would potentially [*739] eliminate most life on Earth, might only occur after many millions of years, [12] our planet is bombarded daily with countless smaller objects. [13] At least three events, in Tunguska, the Amazon, and Central Asia, within the last 100 years alone would have killed "thousands and perhaps hundreds of thousands," had they occurred in more populated areas. [14] While most objects end up in the Earth's oceans, the closeness in time of these recorded smaller-scale events on land suggests that nations will probably have to deal with some level of harm from the sky within the next century.

Impacts – Kills Billions/Disaster

A large impact would kill billions and completely collapse civilization.

Chapman, **Clark** R.Ph D from the Earth and Planetary Sciences Dept. of MIT. 4 March **2004** (The hazard of near-Earth asteroid impacts on earth, http://www.b612foundation.org/papers/Chapman_hazard_EPSL.pdf)

A million-megaton impact, even though 100 times less energetic than the K–T impact, would probably destroy civilization as we know it. The dominant immediate global effect would be sudden cooling, lasting many months, due to massive injection of dust into the stratosphere following impact. Agriculture would be largely lost, worldwide, for an entire growing season. Combined with other effects (a firestorm the size of India, destruction of the ozone layer, etc.), it is plausible that billions might die from collapse of social and economic institutions and infrastructure. No nation could avoid direct, as well as indirect, consequences of unprecedented magnitude. Of course, because civilization has never witnessed such an apocalypse, predictions of consequences are fraught with uncertainty.

Even a small asteroid would create the worst disaster in human history

Scott **Barrett**, **2006**, The University of Chicago, Chicago Journal of International Law, lexis

On December 26, 2001, NASA identified an asteroid about three hundred meters across that was heading toward the Earth. The asteroid, named 2001 YB5, was traveling about 68,000 miles per hour relative to the Earth, and it passed by just a few days after being spotted, approaching as close as a distance about twice that of the Earth from the moon. Had it struck the Earth, this relatively small asteroid would have created "one of the worst disasters in human [*535] history," according to a representative of NASA's Near Earth Asteroid Tracking program. What could we have done about it? "The answer," this same expert explained, "is not much." 29

Asteroids will collide with earth, killing billions

Evan R. **Seamone,** B.A. Sociology, University of CA, LA. March **2002** (*87 Iowa L. Rev. 1091*, lexis)

Asteroids and comets pose unique policy problems. They are the ultimate example of a low probability, high consequence event: no one in recorded human history is confirmed to have ever died from an **asteroid** or a comet, but the odds are that at some time in the next several centuries (and conceivably next year) an **asteroid** or comet will cause mass localized destruction and that at some time in the coming half million years (and conceivably next year), an **asteroid** or comet will kill several billion people.

Impact – Extinction

Asteroid collision leads to extinction

Evan R. **Seamone,** B.A. Sociology, University of CA, LA. March **2002** (*87 Iowa L. Rev. 1091* p. lexis)

Even though collisions with space bodies could potentially extinguish all life on Earth, scientists were slow to appreciate the significance of the threat. Thousands of objects from space descend to our planet's terra firma each year. [44] Space bodies typically disintegrate before entering the Earth's atmosphere, which is protected by a "gaseous shroud" that annually withstands several interplanetary strikes. [45] But some projectiles can be so big and move so fast that the atmosphere cannot absorb their force, at which point damage occurs based on the size and velocity of the impacting object. [46] The destruction of the dinosaurs demonstrates the seriousness of asteroid or comet collision, as opposed to commonplace disasters. [47] Even if **[*1102]** an impact would not cause the end of life, the resulting damage would be unlike any disaster the modern international community has seen. A serious collision could lead to the eventual "poisoning of the atmosphere through the production of various oxides of nitrogen ... [and to] global fires, pyrotoxin production, giant tsunamis, earthquakes, severe greenhouse warming and acidic rain." [48] Even smaller objects (less than 2/3-mile or one kilometer in diameter) could cause damage equivalent to a nuclear detonation. [49]

Asteroid collisions empirically lead to extinction

Sean R. **Mikula**, Lawyer and former Military Intelligence Officer,**2001,** (Blue Helmets in the Next Frontier: The Future is Now,The Georgia Journal of International and Comparative Law, lexis)

The Earth is no stranger to the effects of an asteroid or comet strike. For example, in 1908, an asteroid estimated to be 200 feet across exploded about four miles above Siberia with the force of 1,000 Hiroshima bombs, burning hundreds of square miles of trees in the Tunguska region. [55] One can only imagine the horrific loss of human life if such an asteroid had crashed into a densely populated area such as New York City. As well, "[a]irborne blasts in the kiloton to megaton range were observed in 1930 at the Curuca River in Brazil, in 1947 at Sikhote-Alin, Siberia, in 1965 over Revelstoke, Canada, over Ontario in 1966, and over Alaska in 1969." [56] The most recent example of a sizeable space rock actually crashing into earth occurred November 22, 1996, when a meteorite struck a Honduran coffee field leaving a 165 foot wide crater. [57] Of course, the most famous example of the destruction wrought by an asteroid or comet involved the extinction of the dinosaurs. Scientists now generally accept the once-revolutionary theory that 65 million years ago a comet or asteroid six miles in diameter crashed into the Yucatan Peninsula on the Gulf of Mexico, killing the dinosaurs and most other Earth species. [58]

Impact – outweighs nuclear war

Even a small asteroid or comet leads to worse damage than nuclear detonations

Evan R. **Seamone**, J.D., University of Iowa College of Law; M.P.P. and B.A., University of California, **2004** (Georgetown International Environmental Law Review, "The Precautionary Principle as the Law of Planetary Defense: Achieving the Mandate to Defend the Earth Against Asteroid and Comet Impacts While There is Still Time," lexis)

Second, unlike Skylab or the Mir Space Station, the collision of even a smaller range asteroid can cause damage similar to the detonation of a nuclear bomb. [10] While scaremongers or filmmakers may dwell entirely on horrific predictions of significant damage, it is evident to even the most objective scientist that victims of an asteroid or comet impact face severe consequences. Impacts in the oceans will endanger coastal regions with tsunamis; direct impacts with land could result in a host of problems, like earthquakes in proximate regions, individuals losing their hearing from the sound of the strike, and poisoning of the atmosphere.

Asteroid collision outweighs nuclear disaster

Evan R. **Seamone,** B.A. Sociology, University of CA, LA. March **2002** (*87 Iowa L. Rev. 1091* p. lexis)

Outer Space law also provides for duties to mobilize resources in the case of danger. Aside from its warning provision, The Outer Space Treaty (OST) proclaims that nations capable of so doing must render aid to astronauts in danger. [215] While the OST limits the scope of danger to harm encountered in space, Article V stresses the fact that astronauts in distress require access to common resources while the danger exists. [216] For the same reason, the Treaty also compels nations to aid astronauts who land in their territory. [217] This duty to limit harm, considered with other duties discussed **[*1135]** earlier, suggests that space-related disasters command a different set of international obligations on the part of sovereign nations. Principle VII of the Nuclear Power Principles highlights this unique responsibility by requiring nations to limit harm even if they have nothing to do with its creation. [218] This Principle recognizes the fact that nuclear threats potentially endanger the entire globe and transcend sovereign rights to refuse to provide aid. An Earth collision differs from nuclear disaster only in its heightened severity, a realization that should compel at least the same international obligation.

Impact – Nuclear Winter

A large impactor would produce the equivalent of nuclear winter.

Marusek , James A. 16 November **2004** (Nuclear Physicist, Comet and Asteroid Impact Analysis, http://personals.galaxyinternet.net/tunga/TA.pdf)

At impact, the comet or asteroid will be instantly vaporized along with material from the impact crater/cavity. The diameter of crater/cavity created will typically be 20 times the diameter of the impactor. This debris at temperatures greater than 9,000 degrees Fahrenheit will be ejected into the atmosphere and into space in a ballistic trajectory. Whereas an ocean impact will create a vast amount of superheated steam, an impact on land will eject significantly more solid debris into the atmosphere. As the asteroid or comet strikes the Earth, the tremendous heat produced by the impact will melt and vaporize rock. The blast will also eject debris into the upper atmosphere and into space in a ballistic trajectory. It will take 45 to 60 minutes for the debris to reach the other side of the globe. The debris from a large impactor will blot out the sun, the moon and the stars and turn the Earth dark as night. This vaporized rock cloud will rapidly cool and condense in space and form droplets that solidify into spherules (tiny glass beads about 1mm in diameter). Over the next several hours and days, much of this debris will rain back down over the entire surface of the Earth. This returning debris will be fairly light and will be slowed significantly as it falls through the atmosphere and should not present a significant secondary impact hazard.

Impact – EMP

The impact will generate a massive EMP, destroying the effectiveness of electrical equipment.

Marusek , James A. 16 November **2004** (Nuclear Physicist, Comet and Asteroid Impact Analysis, http://personals.galaxyinternet.net/tunga/TA.pdf)

I theorize that an impact can produce a very high Electro-Magnetic Pulse (EMP). The pulse would occur almost instantaneously after the impact. This pulse is typically of a very short duration, approximately 1 microsecond and is caused by Compton-recoil electrons and photoelectrons from photons scattered in the surrounding medium. The resulting electric and magnetic fields may couple with electrical/electronic systems to produce damaging current and voltage surges. This pulse is not harmful to humans but it is deadly to electronics, especially transistors, semiconductors and computer chips. The scope of this effect has been only minimally studied. Comparing a surface impact to a nuclear weapon EMP can provide a crude measurement of the effective range of this effect. A ground-level nuclear explosion will produce a Source Region Electro-Magnetic Pulse [SREMP] as far as the distance at which the peak overpressure is 2 psi.

Impact – Lava Flows

Even if it doesn't cause immediate extinction, a large impact results in global lava flows and extinction from long term cooling and environmental damage.

Marusek , James A. 16 November **2004** (Nuclear Physicist, Comet and Asteroid Impact Analysis, http://personals.galaxyinternet.net/tunga/TA.pdf)

A large impact can trigger a variety of secondary effects including earthquakes, landslides, volcanoes and lava flows. Most of these events will be triggered by the Primary Ground Shock. Although we have experienced during the course of human history many large disasters of this type, we have not experienced the depth and breath of simultaneous disaster events that can be triggered by a large impact. Various disasters will sweep across the globe. They will generate great devastation, which will further compound the problems during recovery efforts. Volcanoes and lava flows can produce vast amount of debris and aerosols and propel this material into the upper atmosphere and stratosphere. The aerosols and sulfur dioxide in particular, can result in global cooling that can impact crop production.

A massive deep ocean impact will produce two areas (not one) of extensive damage on the surface of the Earth. The first is at the site of the impact. The second is at the exit vector on the opposite side of the globe, where the Earth will be turned into a jumbled debris field from which lava and deadly gases (such as sulfur dioxide) will spew forth for decades. These lava flows represent the major cause of extinctions from an asteroid or comet impact because they result in long-term global ecological damage. (There was a massive episode of lava flows in what is now India, producing huge sheets of volcanic material known as the Deccan Traps at the end of the Cretaceous Period. There was also a very massive episode of lava flows called the Siberian Traps at the end of the Permian Period.) This phenomenon is even observed on other planets. On the planet Mercury, a very large comet or meteorite impact formed the Caloris Basin. The shock wave from this impact traveled through the planet and produced a jumbled terrain on the opposite side.

Impacts – Tsunamis

Asteroids lead to massive tsunamis

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Why, then, were such measures not taken in anticipation of a tsunami on the scale that occurred? Tsunamis are a common consequence of earthquakes, which are themselves common, and tsunamis can have causes besides earthquakes -- a major asteroid strike in an ocean would create a tsunami that would dwarf the one in the Indian Ocean. Again, economics can yield some useful insights.

Impact – Earthquakes

A large ocean impact would cause massive worldwide earthquakes every hour for several years.

Marusek , James A. 16 November **2004** (Nuclear Physicist, Comet and Asteroid Impact Analysis, http://personals.galaxyinternet.net/tunga/TA.pdf)

The thickness of the Earth's crust is around 3 miles under the ocean and 20-35 miles on the continents. The ocean impact of a large comet or asteroid could puncture a hole through the Earth's crust into the molten mantel beneath producing massive lava flows. This impact will generate a compression wave through the molten mantel and core of the Earth. Massive earthquakes will resonate across the crust of the earth for several years after the impact. These compression waves will result in increased volcanic activity. The core of the Earth may develop an oscillation or ring and as a result the pattern of earthquake/volcanic activity will have a repetitious burst cycle (33-70 minutes).

Impact – Supervolcanoes

The impact would trigger the Yellowstone supervolcanoe.

Marusek , James A. 16 November **2004** (Nuclear Physicist, Comet and Asteroid Impact Analysis, http://personals.galaxyinternet.net/tunga/TA.pdf)

An impact can trigger a very intense earthquake. In a large earthquake, the land will take on the appearance of the ocean during a storm with large rolling waves. A deafening roar will precede by a few seconds each quake. Large areas of land will be uplifted or sunk. Landslides will occur. Deep fissures will open up in the earth. Sand blows or eruptions will cover some areas with sand and mud. Above ground and underground rivers will be rerouted. Some new ponds and lakes will form while others disappear. The impact could also wake up the Yellowstone volcano. This is the largest volcano in North America. The impact could also produce large earthquakes in the Reelfoot Rift that is commonly called the New Madrid fault. This is a large earthquake fault line that runs down the center of the U.S. A large earthquake in this fault would generate significant earthquake damage from Chicago to New Orleans. The impact could also produce large earthquakes in the San Andreas Fault system in California.

Impact – Mass Fires

The impact would trigger massive conflagrations.

Marusek , James A. 16 November **2004** (Nuclear Physicist, Comet and Asteroid Impact Analysis, http://personals.galaxyinternet.net/tunga/TA.pdf)

A deep impact that produces a massive release of volcanic magma on the Earth's surface will also produce a very complex climate model. The released light sulfur gases will rise high in the sky and produce a very reflective atmosphere. The volcanic area will be very dark and these acid clouds will wrap around the affected hemisphere, turning half the Earth dark. But the carbon dioxide being heavier than air will cling to the planet's surface acting like a thermal blanket, holding in trapped heat. One million cubic kilometers of magma releases the equivalent of 1 year of solar heating on Earth. Several past impacts that produced global extinction events vented 5 times this amount of magma. This is a significant quantity of thermal heat if the magma was release during a short interval. The magma heat will turn the area thousands of miles near the exit vector into a dark inferno. Water will act as a natural heat transport mechanism. The evaporated moisture will move heat above the carbon dioxide layer venting the thermal energy into deep space. This will quickly turn the forest in this region into tinder. Volcanic induced lightning will ignite these forests producing great mass fires.

Impact – Ozone Layer

Released gasses will destroy the ozone layer.

Marusek , James A. 16 November **2004** (Nuclear Physicist, Comet and Asteroid Impact Analysis, http://personals.galaxyinternet.net/tunga/TA.pdf)

A large comet or asteroid impact will produce large volumes of nitric oxide and carry it well up into the stratosphere, where this aerosol will severely damage and destroy the ozone layer. As a result; high levels of ultraviolet radiation, that is normally shielded by the ozone layer, will reach the surface of the Earth. Ultraviolet radiation can cause serious sunburn, increased incidences of skin cancer and eye damage. Ultraviolet radiation can cause some genetic damage in plants, but the damage will be limited. The ozone molecules will be steadily regenerated by solar radiation after the impact. Complete regeneration and recovery could take several years.

Impact – Mass Famine, Epidemics and Plagues

The impact will cause global agricultural collapse, leading to mass famine, epidemics and plagues.

Marusek , James A. 16 November **2004** (Nuclear Physicist, Comet and Asteroid Impact Analysis, http://personals.galaxyinternet.net/tunga/TA.pdf)

A massive comet impact can produce a global catastrophe. Unfavorable weather conditions following a large impact will retard food production. Acid rain will also contribute by destroying crops. The infrastructure will take a big hit from a large impact. Broken transportation lines will inhibit transport of grains to processing centers and then to population centers. Other damaged infrastructure (government, finance, communications, energy) will place most recovery efforts into shambles. The inability to quickly recover from the damaged infrastructure will lead to starvation and famines in the general population. A weakened population from starvation is vulnerable to disease, epidemics and plagues.

Impact – Rule of Law

Asteroid collision destroys the rule of law

Evan R. **Seamone,** B.A. Sociology, University of CA, LA. March **2002** (*87 Iowa L. Rev. 1091*, lexis)

Certain dangers are so devastating that, upon their occurrence, governments inevitably develop plans to prevent similar harm. Chernobyl, Hiroshima and Nagasaki, and the World Trade Center attacks all marked events so horrific that nations rallied the resources to make a sustained collective effort necessary to regulate matters. [220] If an **asteroid** or comet of **[*1136]** significant mass should strike a populated area, citizens of the world would undoubtedly expect to see implemented many of the preventive efforts I have urged. [221] After all, nations must prevent their citizens from returning to the Hobbesian state of nature described in Part V.C. [222] When nations do not adequately handle serious threats, their citizens will often lose faith in figures of power. [223] As a result, governments tend to respond immediately, and perhaps in an even more exaggerated way than necessary, to assure **[*1137]** their citizens that their safety will be preserved. This Note holds nations to a higher standard of responsibility. Nations should no longer be preoccupied with the present, but should plan for the future. Governments must address serious concerns about allocating scarce resources and lay plans to cope with the horrific realities that will inevitably accompany megadisasters.

Supervolcanoes

Supervolcanoes – Yellowstone overdue

Yellowstone is long overdue to erupt and will threaten the globe.
Robert **Trombley**, PhD, **2003 (Southwest Volcano Research Centre,** Is The Forecasting Of The Eruption Of The Yellowstone Supervolcano Possible, page 2)

Some 640,000 years ago the rumblings of an impending volcanic eruption sounded ominously across the Yellowstone country. Suddenly, in a mighty crescendo of deafening explosions, tremendous quantities of hot volcanic ash and pumice spewed from giant cracks at the earth's surface. Towering dust clouds blackened the sky, and vast sheets of volcanic debris spread out rapidly across the countryside in all directions, covering thousands of square miles in a matter of minutes with a blanket of utter devastation. Abruptly, a great smoldering caldera 30 miles across, 45 miles long, and several thousand feet deep - appeared in the central Yellowstone region, the ground having fallen into the huge underground cavern that was left by the earth shaking eruptions. Lava then began oozing from the cracks to fill the still smoking caldera. The third known supervolcano eruption of Yellowstone had occurred. The first two occurred 2 million and 1.2 million years ago. This frequency *suggests* a recurrence rate of one eruption approximately every 600,000 years. When Yellowstone erupts again, if it does, poses not only a general problem with forecasting but also a possible global threatening crisis. This paper will explore some of the problems with the long range forecasting of such a catastrophic eruption.

Supervolcanoes inevitable/no way to prevent

No way to avert supervolcanoe disaster.

Robert **Britt**, Life Science Senior Writer, March 8, 20**05** (MSNBC, Super Volcanoes Will Chill the World Someday, http://www.msnbc.msn.com/id/7129908/)

Unlike other threats to humanity — asteroids, nuclear attacks and global warming, to name a few — there's little to be done about a super volcano.

"While it may in future be possible to deflect asteroids or somehow avoid their impact, even science fiction cannot produce a credible mechanism for averting a super eruption," the new report states. "No strategies can be envisaged for reducing the power of major volcanic eruptions."

Supervolcanoes – Nuclear Winter

Yellowstone's inevitable eruption will cause global nuclear winter.

Robert **Trombley**, PhD, **2003 (Southwest Volcano Research Centre,** Is The Forecasting Of The Eruption Of The Yellowstone Supervolcano Possible, page2)

When Yellowstone goes off again, and it will, it will be a disaster for the United States and eventually, for the whole world. We volcanologists believe it would all begin with the magma chamber becoming unstable. Observations would begin by seeing bigger earthquakes, greater uplifting as magma intrudes and gets nearer and nearer the surface. An earthquake may send a rupture through a brittle layer similar to breaking the lid off a pressure cooker. This would generate sheets of magma, which will perhaps rise up to 30, 40 or 50 kilometers sending gigantic amounts of debris into the atmosphere. Pyroclastic flows would cover the whole region, killing tens of thousands of people in the surrounding area.

The ash carried in the atmosphere and deposited over vast areas of the United States would have devastating effects. A plume of material that goes up into the atmosphere, globally, from the eruption would produce the climatic effects. This would spread worldwide and have a cooling effect that would most likely destroy the growing season on a global scale.

As Dr. Ted Nield, of the Geological Society of London, stated once, "*When a supervolcano goes off, it is an order of magnitude greater than a normal eruption. It produces energy equivalent to an impact with a comet or an asteroid." "You can try diverting an asteroid, but there is nothing at all you can do about a supervolcano."*

The eruption will throw out cubic kilometers of rock, ash, dust, sulfur dioxide and so on into the upper atmosphere, where it will reflect incoming solar radiation, forcing down temperatures on the earth's surface. It would be the equivalent of a nuclear winter. The effects would last for four or five years with crops failing and the whole ecosystem breaking down.

Supervolcanoes = extinction

A supervolcanoe eruption results in nuclear winter and global extinction.

Maarten **Keulemans,** Scientific Journalist, 20**03** (Exit Mundi, Super Volcanoes, http://www.exitmundi.nl/exitmundi.htm)

So, we'd run away, right? Hmm. If only it was that easy. An even bigger problem than the lava itself is the ash. 64,000 Years ago, a supervolcano made a mess of what is now the US. Of the current 50 states, 21 were covered with a layer of ash, at some places was over twenty meters thick! Well, who cares, you might think - we'd just dust it away. But it isn't that simple. Volcanic ash is not like the ash you find on the barbecue: it is made of tiny pieces of rock. If it falls on your roof, your house can collapse under it's weight. If it gets into contact with cars or airplanes, they will break down or crash. Even worse, if you inhale it, the ash will mix with the liquids in your lungs and form a cement-like substance. You'll literally drown in conrete! So you'd take a boat to another continent, right? Wrong. Apart from lava, volcanoes spew out a deadly brew of toxic chemicals. There are sulphurous gases that turn all rainfall into a blistering downpour of pure sulphuric acid for years to come. There are all kinds of chlorine-bearing compounds, that break down enough of the ozone layer to turn the Sun into a real killer. There's carbon dioxide, the greenhouse gas that not only nibbles at the ozone layer, but also causes long-term global warming. And last but not least, there's soot. A super eruption will darken the Sun, and gradually push the Earth into nuclear winter. For many years, or even centuries, we will have to survive in darkness and cold.

Ok, we may be smart enough to escape from the lava and the ash, dodge the acid rains, survive the nuclear winter and protect ourselves against the killer solar radiation afterwards. But plants and animals definitely are not. We'd find ourselves in an increasingly empty world, as one species after another goes extinct. In the end, even the toughest survivalist would starve to death.

Nuclear War

Inevitable

Nuclear war is inevitable.

Martin E. **Hellman**, Professor of Electrical Engineering, Stanford University, 20**01**, ("Nuclear War: Inevitable or Preventable",Breakthrough), http://www-ee.stanford.edu/~hellman/Breakthrough/book/chapters/hellman.html

Every day, the United States depends on 30,000 nuclear weapons for its security. Every day, the Soviet Union depends on 20,000 nuclear weapons for its security. These weapons are ready for use. There are plans for how to use them, so every day there is a small probability they will be used. In the metaphor of nuclear roulette, every day, we pull the trigger of the many-chambered nuclear gun pointed at the head of civilization.Every day, there is a small chance that one of the forty conflicts going on in the world will escalate. With many of these wars touching upon the perceived vital interests of the major powers, with the experience of the past forty years in the Middle East, with the experience of the 1962 Cuban crisis, there is ample evidence that every war pulls the trigger.

Environment

Extinction inevitable – environment

Environmental degradation makes extinction inevitable.

Steve **Kangas**, editor of Liberalism Resurgent, **1994**, The environment heals slowly -- we are destroying it rapidly.

There are two types of damage that humans cause to the environment. One is long-term, even permanent destruction, such as the extinction of a species or the radioactive poisoning of Chernobyl.

The second is short-term damage -- and this is where conservatives latch onto false hope. It is true that the environment has the capacity to heal itself in some ways. Endangered species can rebound, the earth can create its own ozone, the oceans can absorb greenhouse gases. The rate of recovery depends on the type of damage being done. Species can recover in a few decades; ozone, a century; old growth forests, several centuries; the cooling of radioactive waste, hundreds of thousands of years. But here is a critical point: *the environment cannot recover while we are still increasing the damage to it*. In many areas, humans are destroying the environment faster than it can recover, as the following statistics will show. And if we continue in our current ways, the damage will inevitably become permanent.

Space key to solve environment

Space exploration is key to solve Earth's environmental crisis.

Elizabeth A. **Bozek**, Director of Chapter Affairs Students for the Exploration and Development of Space, June **2006**. National Students' Space Policy Proposal.

Environmental problems can be solved or at least helped with continued space development. Our sun is the most obvious and powerful means by which to harness energy. With a few more years of steady funding, satellite technology would be able to light and power entire cities. With little waste and a huge source, this is the best solution for our world amidst a natural fuel crisis. Solidification of space policy, and perhaps some leniency in restrictions on the private space industry will help promote the commercialization and development of space technologies that will benefit the environment. On the very large scale, space exploration might be our most important endeavor; it might be the only way to preserve the human species. Legislators need to recognize that space is an untapped resource for life. There is immense industrial and commercial value in space. Space exploration is risky, but to be a leader, America must be willing to take risks

Space exploration raises environmental awareness

Evans, **Alastair**, student at Howard of Effingham School, 20**06**
http://www.esa.int/esaHS/ESA4Z2QV16D_education_0.html

Space contributes to world peace. International co-operation has always been a feature of space exploration, from the Apollo-Soyuz link-up at the height of the cold war, to the formation of a space administration shared by many European countries, ESA, to the most recent and largest endeavour in space development, the International Space Station, a joint operation by Brazil, Canada, the USA, Europe, Russia and Japan. In the history of space exploration and in the foreseeable future, work has been peaceful and international, promoting good relationships between countries. Environmental awareness is encouraged through the unique viewpoint offered by a picture of our precious planet from space, and the realisation of its own special situation as the only planet on which we know intelligent life has ever existed.

Space will end the desecration of the Earth and protect humanity from an inevitable asteroid collision.

Elizabeth A. **Bozek**, Director of Chapter Affairs Students for the Exploration and Development of Space, June **2006**. National Students' Space Policy Proposal.

Environmental problems can be solved or at least helped with continued space development. Our sun is the most obvious and powerful means by which to harness energy. With a few more years of steady funding, satellite technology would be able to light and power entire cities. With little waste and a huge source, this is the best solution for our world amidst a natural fuel crisis. Solidification of space policy, and perhaps some leniency in restrictions on the private space industry will help promote the commercialization and development of space technologies that will benefit the environment. On the very large scale, space exploration might be our most important endeavor; it might be the only way to preserve the human species. Legislators need to recognize that space is an untapped resource for life. There is immense industrial and commercial value in space. Space exploration is risky, but to be a leader, America must be willing to take risks

There are many useful resources in space, some of which are easier to obtain than on Earth

John S. **Lewis**, Prof. of Planetary Sci. and Co-Dir., Space Eng. Research Center, U of Arizona, **and** Christopher F. **Lewis**, J.D. J. Reuben Clark Law School **2005** "A Proposed International Legal Regime for the Era of Private Commercial Utilization of Space." George Washington Int. Law Review, lexis

Resources derived from nearby locations in space are of value because they make vast quantities of intrinsically cheap materials, such as water, metals, and propellants, available for use in future large-scale space operations without the enormous expense of lifting them out of Earth's deep gravity well. The ability to operate independent of resupply from Earth also makes possible the retrieval and importation of high-value materials to Earth.Among the most attractive resources for exploitation and use in space are water for production of hydrogen-oxygen propellants, ferrous metals for use in building space structures, and bulk radiation shielding for the protection of explorers and colonists. Some space resources, such as scientific samples or precious and strategic [*747] metals, have a high enough unit value to allow profitable importation to Earth. Delivery of beamed solar energy or fusion reactor fuels such as helium-3 and deuterium to Earth-surface markets may ultimately dominate space commerce. The economic attractiveness of these various commodities is compounded by several factors, including: (1) ease of access to the resources from Earth in terms of energy needed per kilogram or propulsive velocity requirements; (2) resource richness (concentration) and extractability; (3) ease of transportation from the proposed mine site to the intended place of utilization; and (4) mission flight times, which impact venture capital decisions based on the time cost of money. The various proposed sources of extractable resources, including the Moon, NEAs, the Martian moons Phobos and Deimos, the asteroid belt, and the giant planets, are by no means similar in any of these respects.

Space exploration leads to Helium 3

John S. **Lewis**, Prof. of Planetary Sci. and Co-Dir., Space Eng. Research Center, U of Arizona, **and** Christopher F. **Lewis**, J.D. J. Reuben Clark Law School **2005** "A Proposed International Legal Regime for the Era of Private Commercial Utilization of Space." George Washington Int. Law Review, lexis

Fourth, some suggest that the Moon could be a source of the light helium isotope helium-3, which is an attractive candidate as a fuel (along with deuterium) in fusion power reactors. The same solar wind irradiation that implants hydrogen into the regolith also implants solar helium, which contains a small trace of the desired helium-3 isotope. Recovering a single tonne of helium-3 requires perfect extraction and recovery of all the gas from 100 million tonnes of regolith, a seemingly implausible amount. Nonetheless, the energy content of the recovered helium-3 is so large that the process may still make economic sense. The lunar regolith apparently contains enough helium-3 to power Earth's industries for several centuries, comparable to the known coal reserves on Earth.

Space resources are plentiful and cost effective to obtain

John S. **Lewis**, Prof. of Planetary Sci. and Co-Dir., Space Eng. Research Center, U of Arizona, **and** Christopher F. **Lewis**, J.D. J. Reuben Clark Law School **2005** "A Proposed International Legal Regime for the Era of Private Commercial Utilization of Space." George Washington Int. Law Review, lexis

Approximately 1,400 NEAs with diameters greater than one kilometer (and a million with diameters greater than 100 meters) are presently in orbits that cross or graze Earth's orbit around the Sun. About 20 percent of these are energetically easier to reach and land on than the Moon. Some of these asteroids are extinct comet nuclei with water contents ranging up to about 50 percent; some are huge crystals of iron-nickel alloy; others belong to well over a dozen different composition classes. The NEA Amun, about two kilometers in diameter, contains far more metal than the total amount used by the human race since the beginning of the Bronze Age. Its Earth-surface market value is tens of trillions of dollars, larger than the annual gross global product of Earth. Many NEAs can return materials to Earth at a much lower energy cost than that of returning a similar mass to Earth from the Moon. In extreme cases, the energy advantage of asteroid material return relative to lunar return reaches 2500:1.

Solvency—space resources

The moon has a wealth of natural resources waiting to be claimed, including water

John S. **Lewis**, Prof. of Planetary Sci. and Co-Dir., Space Eng. Research Center, U of Arizona, **and** Christopher F. **Lewis**, J.D. J. Reuben Clark Law School **2005** "A Proposed International Legal Regime for the Era of Private Commercial Utilization of Space." George Washington Int. Law Review, lexis

First, there is evidence from Earth-based radar studies and spacecraft observations that an accumulation of considerable amounts of water-ice in permanently shadowed crater bottoms exists near both lunar poles. This water, condensed from vapor liberated by impacting comets and water-bearing asteroids, is not native to the Moon. The concentration and the horizontal and vertical distribution of ice in the shadowed regions, are not well known. Precursor unmanned missions to assess the ice are urgently required. It is possible that the concentration of water-ice is so low that economical extraction is out of the question. If precursor missions find abundant and accessible ice, however, this water could be of enormous economic importance in the exploration of the Moon, providing both propellants for rocket engines and life-support materials (such as water and oxygen) for visiting astronauts. [*748] Second, manned outposts anywhere on the Moon would require shielding against cosmic radiation and micrometeoroid impacts. Burying habitation modules under a meter or two of unprocessed lunar regolith (impact-shattered surface layer) can meet this need.Third, both oxygen and hydrogen are present in the dry lunar regolith at all latitudes. Oxygen bound up in iron oxide minerals such as ilmenite (FeTiO<3>) or olivine ((Fe,Mg)<2>SiO<4>) can be extracted as water vapor by heating these minerals with hydrogen brought from Earth. The water vapor produced by this reaction is condensed and electrolyzed into hydrogen, recycled, and the oxygen is liquefied. These elements can then be used for life support or as a rocket propellant. The highest concentrations of FeO and, hence, extractable oxygen, are found in the circular mare basins on the near side of the Moon. The yield of extractable oxygen in these basins can approach 2 percent of the mass of regolith. Hydrogen, implanted into regolith grains by the solar wind, is present in much lower concentrations, rarely reaching 50 parts per million (0.005 %). Accordingly, economically important amounts of hydrogen can only be extracted by heating huge masses of regolith (20,000 tonnes of regolith to produce a single tonne of hydrogen).Fourth, some suggest that the Moon could be a source of the light helium isotope helium-3, which is an attractive candidate as a fuel (along with deuterium) in fusion power reactors. The same solar wind irradiation that implants hydrogen into the regolith also implants solar helium, which contains a small trace of the desired helium-3 isotope. Recovering a single tonne of helium-3 requires perfect extraction and recovery of all the gas from 100 million tonnes of regolith, a seemingly implausible amount. Nonetheless, the energy content of the recovered helium-3 is so large that the process may still make economic sense. The lunar regolith apparently contains enough helium-3 to power Earth's industries for several centuries, comparable to the known coal reserves on Earth.

Space exploration solves for resource depletion

Ezra J. Reinstein, Associate, Kirkland & Ellis,1999, ("Owning Outer Space", Northwestern Journal of International Law & Business), lexis

Space offers the potential for practically limitless wealth, some already being exploited, some we may only harness in the distant future, and undoubtedly some we cannot begin to guess. Already the wealth of space is being developed in the form of telecommunications and remote satellite observation. The private-sector investment in telecommunications satellites alone was projected to total $ 54.3 billion (including launch) between 1996 and 2000 [1] -- and this figure doesn't include other commercial space ventures, nor does it include investment in Russian and Chinese satellites. A further $ 70 billion was projected to be invested in satellite communications ground stations over the same period. [2] Research in materials science is uncovering phenomena unique to the low-and no-gravity environment of space, and the space-based processing of these new alloys, composites, ceramics and polymers may soon become an important industry. [3] The field of biotechnology is also taking advantage of zero-gravity conditions to manufacture **[*60]** protein crystals, which the pharmaceutical industry can use to create drugs that are able to "turn off" a protein, thereby regulating metabolic processes. [4] Engineers have considered the possibility of capturing solar energy in massive quantities by laying out giant cells in space and on our moon. [5]

Solvency—space resources

Space exploration will lead to conserving the Earth's natural resources due to new, more advanced resource discoveries.

Kelly M. **Zullo**, J.D., Georgetown University Law Center, July **2002**, (Georgetown Law Journal, 90 Geo. L.J. 2413, lexis)

The Earth's supply of oil and natural gas may be effectively exhausted around the year 2050. [146] Our current knowledge and technology allow us to identify two possible sources of fuel in space that can be brought to Earth economically: helium-3 (He-3) and solar power.Scientists postulate that He-3 can be used for nuclear fusion with essentially no radioactive waste or pollutant by-products. [148] However, the Earth contains practically no He-3; most of the He-3 that is on Earth was generated as a by-product of nuclear weapons production.In contrast, the Moon is rich with He-3, which is deposited by the solar wind. [150] The solar wind cannot deposit He-3 on Earth because the solar wind is ionized and, therefore, is deflected by the Earth's magnetic field. [151] The concentration of He-3 on the Moon has been verified by samples from Apollo 11, 12, 14, 15, 16, 17 and U.S.S.R. Luna 16 and 20. [152] At least one million tons of He-3 are imbedded in the lunar surface. [153] The electricity needs of the entire world in [*2434] the year 2000 could have been provided by 150 tons of He-3. [154] A single space shuttle load of He-3 could supply the energy for the United States for one year. [155] To put it in perspective, the Moon's reserves of He-3 contain ten times more energy than all the economically recoverable coal, oil, and natural gas on Earth. [156] Helium-3 would provide a low-cost, efficient energy source while preserving the Earth's scarce natural resources. At one billion dollars a ton--the estimated selling price of He-3--the energy cost of He-3 is equivalent to oil at seven dollars per barrel. [157] By comparison, crude oil costs nearly four times as much, with prices hovering around $ 27.52 per barrel as of August 2002. [158] Helium-3 nuclear fusion is also highly efficient, with an efficiency rate greater than seventy percent. [159] Unlike nuclear fission currently practiced on Earth, He-3 fusion would be safe--the worst possible accident at a He-3 nuclear fusion plant would cause no off-site fatalities. [160] While He-3 offers hope of a better energy source, private investors will be hesitant to assume the risk involved unless the space property rights law is revised. Under the interpretation of some developing countries, all extraterrestrial mining must be governed by the Moon Treaty's envisioned international regulatory regime and profits obtained from the mining must be distributed among all nations. Because this debate is unsettled, private enterprises are unlikely to invest the capital necessary to establish an extraterrestrial mining facility.Unlike He-3, which is a plentiful but ultimately limited resource, space solar power (SSP) promises an endless supply of nonpolluting energy. [161] NASA has been studying a variety of SSP concepts for converting sunlight to electricity with photovoltaic cells. [162] Huge photovoltaic structures could be placed either [*2435] in geostationary orbit (GEO) or on the Moon where they would have uninterrupted sunlight exposure. [163] The space-based photovoltaic structures would then beam the energy, as microwave radiation, back to Earth. [164] Scientists calculate that photovoltaic structures in GEO would receive about eight times as much sunlight as they would on Earth and would not be affected by cloud cover or atmospheric dust. [165] In addition to providing a viable energy source for Earth, solar power may fuel spacecrafts, probes, and research bases on celestial bodies such as the Moon. Under the current space property rights framework, a developing country may be able to argue that it has the right to receive energy and profits from the SSP system, even if that country did not fund the system or pay for the energy as it arrived. Space property rights law needs to be clarified soon because other nations are already planning to exploit the He-3 and solar power resources on the Moon and other celestial bodies. India plans to send a satellite to the Moon to study the topographical aspects of the Moon, examine the composition of the lunar crust, and map the Moon using stereoscopy. [166] India is concurrently studying the potential of using He-3 as an energy source and of using the Moon as a launch point for space exploration and as a strategic defense point. [167] The European Space Agency's Small Missions for Advanced Research and Technology (SMART 1) plans to send its spacecraft to orbit the Moon for six months. [168] In 2002 or 2003, Japan plans to send its Lunar A module into lunar orbit where it will drop two devices that will penetrate the Moon's surface and measure seismic activity for a full year. [169] In 2003, Japan plans to launch its unmanned Selene module to orbit the Moon for a year, collecting remote sensing data and soft-landing on the lunar surface. [170] Japan also plans to have a solar power satellite in operation by 2040. [171] As more nations prepare to embark on space ventures, the need for certainty in international space property rights law becomes increasingly critical.

Solvency—space solves resources

Space exploration allows huge supplies of Helium-3

Ezra J. Reinstein, Associate, Kirkland & Ellis,1999, (“Owning Outer Space”, Northwestern Journal of International Law & Business), lexis

Perhaps the most lucrative area of development is the mining of celestial bodies. On the moon, an assay of only 30 km[su'2'] of the lunar surface during Apollo-17 turned up deposits of Helium-3, a radiation-free fusion reactor fuel, practically nonexistent on Earth, that is more efficient than any radioactive fuel currently available. [6] So-called near-Earth asteroids ("NEAs"), six are closer to Earth than our moon and more than 50 closer than Mars, [7] might also be optimal targets for early development. The smaller of these **asteroids** have negligible gravitational fields, which would reduce fuel costs far below what is necessary for a lunar mission. Many of these NEAs seem to be rich in raw materials that are either rare and valuable on Earth, or common on Earth, needed in space, but expensive to launch. [8] For instance, there is accumulating evidence that some NEAs contain gold, rhenium, germanium, and platinum-group metals -- platinum, palladium, iridium, osmium, rhodium, and ruthenium -- at concentrations of up to 100 times those that are mined on Earth. [9] Glenn Reynolds [10] has observed, "The smallest known near-Earth metal asteroid contains more metal than has been mined by humanity since the beginning of time." [11] It has been estimated that 2,000 NEAs larger than 1 km in diameter exist. [12]

Colonization Good

Colonization Transformative

Colonizing space will transform humanity into a peaceful, decentralized civilization.

Gerard K. **O'Neill** was professor of physics at Princeton University. **1974**, The Colonization of Space, http://members.aol.com/oscarcombs/TCoS.html.

Friends advised that I take my ideas "to the people" in the form of physics lectures at universities. The positive response (especially from students) encouraged me to dig harder for the answers to questions about meteoroid damage, agricultural productivity, materials sources, economics and other topics. The results of that study indicate that
we can colonize space, and do so without robbing or harming anyone and. without polluting anything.
if work is begun soon, nearly all our industrial activity could be moved away from Earth's fragile biosphere within less than a century from now.
the technical imperatives of this kind of migration of people and industry into space are likely to encourage self-sufficiency, small-scale governmental units, cultural diversity and a high degree of independence.
the ultimate size limit for the human race on the newly available frontier is at least 20,000 times its present value.

Solves environment, poverty, energy

Space colonization will solve all of our environmental, energy and poverty crisis.

Gerard K. **O'Neill** was professor of physics at Princeton University. **1974**, The Colonization of Space, http://members.aol.com/oscarcombs/TCoS.html.

It is important to realize the enormous power of the space-colonization technique. If we begin to use it soon enough, and if we employ it wisely, at least five of the most serious problems now facing the world can be solved without recourse to repression: bringing every human being up to a living standard now enjoyed only by the most fortunate; protecting the biosphere from damage caused by transportation and industrial pollution; finding high-quality living space for a world population that is doubling every 35 years; finding clean, practical energy sources; preventing overload of Earth's heat balance.

Colonization key to survival

The human race must colonize space to survive
The Baltimore Sun Company February 2, 2004

Putting people in space is expensive. But doing nothing - staying home - could carry high costs, too, some say.

Nations that have stopped their exploration and expansion have become vulnerable to others, said Carleton University's Laughlin.

"They start swirling around in a circle and they stop developing," he said, citing medieval China and Arabic cultures as examples. "The same damn thing could happen to us ... if our resources dry up or our political will disappears."

Worse, proponents of space colonization say a failure to move humans off the planet will leave the species vulnerable to extinction through environmental catastrophe, such as an asteroid strike.

"If the human race is to survive, it must positively become a multiplanet species, because something is going to make it impossible for us to survive here on Earth," said Roger D. Launius, chairman of the space history division at the National Air and Space Museum.

"That is the ultimate threat, and the reason why we've got to do it," he said. "It is also the one people don't take very seriously."

NO OTHER LIFE EXISTS BUT US: IT IS OUR RESPONSIBILITY TO CARRY LIFE TO SPACE
SAVAGE 93 (Marshall T. Savage, president of the First Millenial Foundation, THE MILLENIAL PROJECT, 1993, p. 1)

Scanning the star clouds of the Milky Way with the beacon of the mind's eye, we see that it is wholly uninhabited. All these treasures strewn before us are free for the taking. There is no guardian genie. There are no alien owners to be bargained with, no evil empires to be vanquished, not even a galactic bureaucracy to demand emigration forms in triplicate. The galaxy is free and open now in a way it never will be again. Our species can skate across the glassy spaces, sliding unfettered through the blizzard of stars, skimming down the frosty spiral arms to the snowy banks of the galactic nucleus.

For better or worse, Life has evolved Homo Sapiens as the active agent of her purpose. We are the sentient tool_users. Perhaps Life should have bet on the dolphins. But, she put her money on us, and there is no time left for second guesses. Life has endowed us the with power to conquer the galaxy, and our destiny awaits us there, among the powdery star_fields of deep space. Now we must spring from our home planet and carry the living flame into the sterile wastes. It is time to return the gift of Prometheus to the heavens.

Colonization key to survival

LIFE ON THIS PLANET IS SACRED AND MUST BE PRESERVED AT ALL COSTS: IT IS WORTH MORE THAN ALL OTHER POTENTIAL LIFE

SAVAGE 93 (Marshall T. Savage, president of the First Millenial Foundation, THE MILLENIAL PROJECT, 1993, p. 1)

Life is too precious a thing in the Cosmos not to be preserved at all costs. It is entirely possible that ours is the only living planet in the universe. Throughout the star clouds of the Milky Way, planets probably team by the hundreds of millions. But every one may be as dead and sterile as our own moon. Those myriad empty worlds could be just so many particles of barren galactic dust. Yet, out of the margin of this vast slag_heap of stellar debris, there blows a single magic scintilla of blue_green living light. Like a lone incandescent spark in an endless landscape of cinders__this is Gaia. Earth, a single tiny glimmer of Life, utterly and eternally alone. And yet, for all our microscopic insignificance, we have the potential to suffuse our green fire through every granule of the whole lifeless pile. What is such a spark worth do you suppose? How many of the lifeless worlds would you give in exchange for the one living one? It is like asking how much coal ash you would trade for the Hope Diamond.

Then the entire responsibility for Life in the Cosmos is ours to bear. Compared to this duty, the burden of Atlas was nothing. As the sole caretakers of Life it is our sacred duty not only to preserve Life here on Earth, but also to disseminate the magic among the stars.

WAITING TO GO TO SPACE JUST CAUSES A SLIDE TO DISASTER

SAVAGE 93 (Marshall T. Savage, president of the First Millenial Foundation, THE MILLENIAL PROJECT, 1993, p. 1)

To fulfill our cosmic destiny and carry Life to the stars we must act quickly. The same unleashed powers that enable us to enliven the universe are now, ironically, causing us to destroy the Earth. The longer we delay, the further we may slip into a pit of our own digging. If we wait too long, we will be swept into a world so poisoned by pollution, so overrun by masses of starving people, so stripped of surplus resources, that there will be no chance to ever leave this planet. Thus far, we have failed to use our new powers for the ends they were intended. The result is an accelerating slide toward disaster.

ONLY BY LEAVING THE EARTH CAN WE SURVIVE AND MATURE

SAVAGE 93 (Marshall T. Savage, president of the First Millenial Foundation, THE MILLENIAL PROJECT, 1993, p. 1)

Our situation is analogous to yeast in a bottle. The yeast cells will double their number every day until the bottle is full__then they will all die. If the yeast die on the 30th day, then on what day is the bottle half full? The 29th day! We are in the 29th day of our history on Earth. We must do something now, or face extinction. The obvious answer is to blow the lid of this bottle! We need to rupture the barriers that confine us to the land mass of a single planet. By breaking out, we can assure our survival and the continuation of Life. Space beckons us. It is the clarion call of destiny. We are still evolving as a species and Life is still evolving as a force of nature. Only by leaving the womb of Mother Earth can man and Life survive and mature.

Colonization key to survival

WE HAVE A VERY SHORT WINDOW TO EXPAND INTO SPACE: IF WE DON'T DO IT NOW, WE NEVER WILL

ENGDAHL 2000 (Sylvia Engdahl, author, "Space and Human Survival," July 4, 2000, www.sylviaengdahl.com/space.htm)

I have called this stage in our evolution the "Critical Stage." Paul Levinson [the Director of Connected Education] uses different terminology for the same concept. He says that we have only a narrow window to get into space, a relatively short time during which we have the capability, but have not yet run out of the resources to do it. I agree with him completely about this. Expansion into space demands high technology and full utilization of our world's material resources (although not destructive utilization). It also demands financial resources that we will not have if we deplete the material resources of Earth. And it demands human resources, which we will lose if we are reduced to global war or widespread starvation. Finally, it demands spiritual resources, which we are not likely to retain under the sort of dictatorship that would be necessary to maintain a "sustainable" global civilization.

Because the window *is* narrow, then, we not only have to worry about immediate perils. The ultimate, unavoidable danger for our species, the death or explosion of our sun, is distant--but if we don't expand into space now, we can never do it.

SPACE TRAVEL SOLVES ALL OF HUMANITY's PROBLEMS: NOT GOING TO SPACE LEADS TO EXTINCTION

ENGDAHL 2000 (Sylvia Engdahl, author, "Space and Human Survival," July 4, 2000, www.sylviaengdahl.com/space.htm)

Some of you are probably thinking that space travel isn't going to be a big help with these problems, as indeed, the form of it shown in today's mythology would not. Almost certainly, you're thinking that it won't solve the other problems of Earth, and I fear you may be thinking that the other problems should be solved first.

One big reason why they should not is the "narrow window" concept. The other is that they *could* not. I have explained why I believe the problem of war can't be solved without expansion. The problem of hunger is, or ultimately will be, the direct result of our planet's limited resources; though it could be solved for the near-term by political reforms, we are not likely to see such reforms while nations are playing a "zero-sum game" with what resources Earth still has. Widespread poverty, when not politically based, is caused by insufficient access to high technology and by the fact that there aren't enough resources to go around (if you doubt this, compare the amount of poverty here with the amount in the Third World, and the amount on the Western frontier with the amount in our modern cities). Non-contagious disease, such as cancer, is largely the result of stress; and while expansion won't eliminate stress, overcrowding certainly increases it. The problem of atmospheric pollution is the result of trying to contain the industry necessary to maintain our technology within the biosphere instead of moving it into orbit where it belongs.

In short, all the worldwide problems we want to solve, and feel we should have solved, are related to the fact that we've outgrown the ecological niche we presently occupy. I view them not as pathologies, but as natural indicators of our evolutionary stage. I would like to believe that they'll prove spurs to expansion. If they don't, we'll be one of evolution's failures.

Colonization key to survival

THE CHOICE IS SPACE COLONIZATION OR EXTINCTION: WE ONLY HAVE A FEW SHORT YEARS TO CHOOSE

HAMBLET 95 (Harold Hamblet, space author, SPACE VIEWS, October 1995, http://www.seds.org/spaceviews/9510.html#arguments)

In all the readings I have recently done on the subject, both camps failed to mention something that is commonly believed and talked about in the pro-space movement, that I think was first put into print by Robert Heinlein: "A civilization or species that fails to develop space travel becomes extinct." This is a self-evident and easy to prove axiom. What is not so evident, and a thought that I haven't seen before in print is this: a technological civilization on the verge of expanding into space is close to the point where it runs out of resources on its home planet. If it runs out of resources before establishing itself in space, the civilization collapses, never rises to the same heights, and soon thereafter becomes extinct.

Civilization is now close to the point of collapse. How close is open to debate. Even if you don't believe this yourself, most national and international leaders believe this, and their actions are shaped by their beliefs. In fact, the coming collapse of civilization is required reading in most school systems. Limits to Growth is the original tract outlining future chaos. The Population Bomb and The Population Explosion outline the same doomsday scenario of the collapse of technological civilization. Anything by the widely-quoted-in-the-press-as-a-scientific-expert Jeremy Rifkin contributes to this belief. Our very own vice-president's book, Earth in the Balance, and all of its 100+ listed references all outline the coming collapse. Not one of these books outlines an optimistic future in which space travel has become routine, In fact, they all offer the same prescription, one which would doom space travel for the human race forever. Reduce the world's population, immediately. Reduce the first world's standard of living, immediately. Create a one world government, even if you call it something else. Deindustrialize, and return to a more balanced way of living with Gaia, the Earth Mother. If you don't believe that these are the universal panaceas, read the books. Most of our political leaders have. They have not read High Frontier, nor are they familiar with terms like single stage to orbit, solar power satellites, or generation ships.

The doomsday argument: space travel or extinction. It may sound extreme, but it is really the only choice of futures. Furthermore, we have only a limited amount of time left to achieve space travel. Extinction is the default choice. If the human race does not actively pursue space development in the near future, the choice of extinction has been made. I have run this argument through several dozen people who are not rabid pro-space advocates like me. They have all understood it; it is a simple argument. None have found serious fault in it; there is none.

******AT CPs******

AT: Private Companies CP

Private corporations need the government to go into space.

Hertzfeld in **05** (Henry R. and Frans G. von der Dunk, Adjunct Professor of International Affairs, Elliott School of International Affairs, Space Policy Institute and the Center for International Science and Technology Policy, George Washington University, Chicago Journal of International Law, *Bringing Space Law into the Commercial World: Property Rights without Sovereignty*, Spring 2005)
Firms today with their sights on deep space exploration have far more serious problems than property rights issues. They cannot and will not succeed without passing normal business planning tests. There are several unforgiving aspects to space business ventures. First, the cost of access to space will remain very high -- prohibitive for any type of private activity that requires frequent trips up and back. Second, the resources on the moon or asteroids have to be shown to be valuable enough to either find a way to use them on-site or to return them to earth. This has not been demonstrated as yet. Third, a significant era of research and development will have to take place before the methods of mining, using, and transporting these resources will be perfected and will pass safety and environmental regulations. That era, if it is anything like past ones, will be characterized by government involvement and oversight. This would result in property rights issues being postponed indefinitely until governments are willing to turn over the operations. Also, under government jurisdiction or partnerships, the issues of property rights will be handled by government agencies, not by private entities.
Second, no private company can operate in space without the consent and regulation of at least one governmental entity because, by treaty, every spacefaring nation has agreed that each government will ultimately be liable for the actions of its citizens. This potential large liability has necessitated a licensing and regulatory system to be established in many nations to protect government funds. Although these systems are not identical in each nation (and some nations do not have adequate systems in place at the present time), the threat of a large public payout from private activities has resulted in government involvement in every major space nation. Government involvement virtually mandates some form of partnership arrangement with private companies wishing to operate in space and, in today's environment, also means close scrutiny for security reasons.

AT: Private companies CP

Private space travel won't solve—accidents regulate newcomers into the field

Molly K. Macauley, Senior Fellow, Resources for the Future, Washington, DC, ARTICLE: SYMPOSIUM: ISSUES IN SPACE LAW: Flying in the Face of Uncertainty: Human Risk in Space Activities, Copyright (c) 2005 The University of ChicagoChicago Journal of International LawSummer, **2005**, lexis

An argument against further or more stringent regulation could be based on the assumption that any passenger deaths are likely to discourage flight to a much sharper degree than in aviation. In an interview about privately offered human spaceflight, its backers note that "one [fatal] incident can put the whole business in deep trouble." [43] If this is the case, the industry has strong incentives to self-regulate. Another issue that may arise is whether limits to the liability of space transportation companies for damage claims by passengers are warranted. Such limits could be the spaceflight counterparts to the Warsaw Convention ("Convention"). [44] Among other provisions, the Convention limits the financial liability of air transportation companies to damages claimed by passengers for themselves, cargo, and baggage, and also establishes uniformity with respect to liability among the countries that are signatories. [45] The Convention was established in the early days of commercial aviation, in part to protect the nascent industry financially.

The perm solves—commercial investments in space are considered national assets

Major **Willson** (B.A., C.W. Post College; J.D., Touro School of Law; LL.M., The Judge Advocate General School) is the International & Operational Law Attorney, Army Space Command, Colorado Springs, Co. 20**01** (An Army View of Neutrality in Space: Legal Options for Space Negation, lexis)

As outer space becomes more commercialized, and in turn more profitable, arguments against State jurisdiction and control over commercial companies involved in space activities will appear with increasing frequency. With the influx of commercial companies entering the space arena creating new venues for economic growth and revenue to launching States, such States may be reluctant to impose burdensome restraints on these moneymaking ventures within their territories.Today due to the vast commercialization of space and the amount of money involved, restricting or limiting the activities of a commercial company in another country may be more difficult than it was during the Gulf War. [84] Regardless of the commercialization of space, space assets will most likely continue to be considered national assets when owned by private organizations. [85] If this were not true, if one day States are not held responsible for space objects, the U.S. would not have to worry about **[*192]** violating neutral territory, but only about claims for loss when the satellite of the organization is destroyed. What about States who are not signatories to the various treaties, are they then immune from responsibility? Probably not, treaties such as the Outer Space Treaty, Liability Convention, Registration Convention, and Rescue Agreement, appear to be so widely accepted that they would are probably considered customary international law and would thus be applicable to all nations, even non-signatories.

AT: Private companies CP

Corporate investment in space will fail absent changes in the ambiguous legality of investement in space

Ezra J. Reinstein, Associate, Kirkland & Ellis,1999, ("Owning Outer Space", Northwestern Journal of International Law & Business, lexis)

If a firm is eventually able to bring ore down to Earth, the total wealth available to humanity will be increased. The estimated Helium-3 reserves on our moon would create, in a controlled fusion reaction, 10 times as much energy as is contained in Earth's recoverable coal, oil, and gas combined. [20] What is stopping these companies now, perhaps more than the money or technology, is the uncertainty of the legal regime. If exploitation of outer space's bounty is our goal, we must establish a space property legal system that creates both incentives and predictability. Space development is a highly risky endeavor, as well as mind-bogglingly expensive. Who would expend the effort in developing a space colony, if they were not certain of the project's legality? Valuable projects -- energy collection, mining, and colonization -- are by no means inevitable. If the law of outer space rejects such uses, or even makes their legality uncertain, it is unlikely that the necessary [*62] technology would ever be created. A promising solution to our ever-growing energy needs involves setting up giant banks of solar panels in Earth's orbit and on the moon's sunny side, using the solar energy to power space development projects, and then beaming the excess down to Earth as microwave energy for terrestrial use. [21] Will a private electric company be willing to develop such a lunar solar collection system? Not without a field of space law that permits exploitation and a strong rate of return on investment. Unless we can impose a rule of law that eliminates uncertainty while permitting the highest possible rate of return, we may be denied access to the fruits of space for a long time to come.

Companies will pull out of space investments due to laws that make investment unprofitable

Hertzfeld ***(Henry R. and Frans G. von der Dunk, Adjunct Professor of International Affairs, Elliott School of International Affairs, Space Policy Institute and the Center for International Science and Technology Policy, George Washington University, Chicago Journal of International Law, Bringing Space Law into the Commercial World: Property Rights without Sovereignty, Spring 2005)***

International agreements declare that no government can claim outer space or celestial bodies in outer space as its own. Private firms seeking to invest in potential space enterprises frequently point to these provisions as a major barrier to the future commercial development of space. Such businesses contend that the absence of property rights prevent them from obtaining external financing, hinder the protection of their investments in space, and deprive them of the assurance that they can appropriate income from their investment. In short, the lack of sovereignty in space jeopardizes the ability to make profits from private investment.

AT: Private Companies CP

Perm—corporate action requires government oversight

Hertzfeld (Henry R. and Frans G. von der Dunk, Adjunct Professor of International Affairs, Elliott School of International Affairs, Space Policy Institute and the Center for International Science and Technology Policy, George Washington University, Chicago Journal of International Law, Bringing Space Law into the Commercial World: Property Rights without Sovereignty, Spring **2005**, lexis)

Firms today with their sights on deep space exploration have far more serious problems than property rights issues. They cannot and will not succeed without passing normal business planning tests. There are several unforgiving aspects to space business ventures. First, the cost of access to space will remain very high -- prohibitive for any type of private activity that requires frequent trips up and back. Second, the resources on the moon or asteroids have to be shown to be valuable enough to either find a way to use them on-site or to return them to earth. This has not been demonstrated as yet. Third, a significant era of research and development will have to take place before the methods of mining, using, and transporting these resources will be perfected and will pass safety and environmental regulations. That era, if it is anything like past ones, will be characterized by government involvement and oversight. This would result in property rights issues being postponed indefinitely until governments are willing to turn over the operations. Also, under government jurisdiction or partnerships, the issues of property rights will be handled by government agencies, not by private entities. Second, no private company can operate in space without the consent and regulation of at least one governmental entity because, by treaty, every spacefaring nation has agreed that each government will ultimately be liable for the actions of its citizens. This potential large liability has necessitated a licensing and regulatory system to be established in many nations to protect government funds. Although these systems are not identical in each nation (and some nations do not have adequate systems in place at the present time), the threat of a large public payout from private activities has resulted in government involvement in every major space nation. Government involvement virtually mandates some form of partnership arrangement with private companies wishing to operate in space and, in today's environment, also means close scrutiny for security reasons.

AT: UN/International CP

The UN can't enforce the plan

John S. **Lewis**, Prof. of Planetary Sci. and Co-Dir., Space Eng. Research Center, U of Arizona, **and** Christopher F. **Lewis**, J.D. J. Reuben Clark Law School **2005** "A Proposed International Legal Regime for the Era of Private Commercial Utilization of Space." George Washington Int. Law Review, lexis

The United Nations is not the best-equipped entity to handle these matters. Although the United Nations is capable in establishing general principles of international law, it has not always proven effective at managing specific legal dilemmas. If a multilateral treaty among space-faring countries proves its worth over time, perhaps then the United Nations would be able to step in and play a part, although such action might not be necessary. There is no reason to wait for the unlikely moment when the Moon Treaty or future treaties become uniformly adopted among member-states. Mankind is already on the verge of accessing the wealth of space resources on the Moon and in NEAs, which would both increase supply and decrease the cost of many valuable and currently limited resources. It would be an economic detriment to the whole planet to frustrate those efforts before they literally get off the ground.

International solutions fail

Evan R. **Seamone,** B.A. Sociology, University of CA, LA. March **2002** (*87 Iowa L. Rev. 1091*, lexis)

Treaties are perhaps the most compelling source of law because they indicate when nations have assumed binding legal obligations. [123] International law recognizes the weight of treaties in the principle of pacta sunt servanda (that "every treaty in force is binding upon the parties to it and must be performed by them in good faith" [124]). While there are treaties that address the responsibility of nations to aid astronauts in distress or warn **[*1118]** each other of impending danger when exploring or using Outer Space, [125] none of these treaties have yet addressed the question of a collision between space bodies and the Earth. [126] While such treaties may very well direct a nation that spots an approaching **asteroid** or comet to warn others, the problem with relying on a treaty-based duty to give warning is that warnings presume the actual notice of an impending threat. This is hardly the case in all major **asteroid** or comet collisions. [127] Furthermore, effective planning would require further delineation of duties to combat the extreme devastation caused by an impact. [128]Customary international law also encompasses duties extending beyond the limits of the explicit wording of treaties. So long as countries manifest their commitments to a certain practice in their relations with other nations, duties to comply with the course of former performance may very well exist with the same force of law as a treaty-based obligation. [129] In The Paquete Habana case, [130] for example, the United States Supreme Court held that, as long as a custom could be established through historical international practice, "international law is part of our law." [131] Yet, a customary international duty to collaborate in response to Earth collisions would require prior international commitments specifically to react to these threats. As Part II.B explained, the lack of historical commitment among scientists to treat such threats seriously raises questions about whether cataloguing efforts are so historically entrenched as to constitute binding obligations among nations. [132] Because most nations are noncommittal as to their obligation to respond to Earth collisions, customary international law, **[*1119]** in all probability, would prove an ineffective tool. [133]

AT: UN/International CP

International space law is currently preventing private and public benefits from space.

Kelly M. **Zullo**, J.D., Georgetown University Law Center, July **2002**, (Georgetown Law Journal, 90 Geo. L.J. 2413, lexis)

Commercial exploitation of space is inevitable. However, commercial exploration of space will flourish only when the legal regime provides certainty in property rights that will give the economic incentive to space pioneers. Under the current international space law framework, commercial space enterprises face legal uncertainty introduced by the Moon Treaty. Developed and developing nations disagree about the interpretation of the Moon Treaty's "common heritage of mankind" language and the provision calling for the establishment of an international authority to govern exploitation of space resources. The international community needs to clarify the status of property rights in space to allow market-based principles to govern commercial space activities. With such a legal framework in place, space exploration and use will commence for the benefit of all mankind.Use of outer space resources is not possible without some degree of appropriation, but the Moon Treaty language says that the natural resources of the Moon and other celestial bodies are the common heritage of mankind, governed by the yet-to-be-established international regulatory regime. [192] The debate over the inconsistency between the developed nations' visions for a reasonable degree of private appropriation and the developing nations' desire for a community property approach was less critical when the Outer Space Treaty was drafted in the late 1960s and when the Moon Treaty was drafted in the late 1970s because space activities were so expensive as to make commercial exploitation impractical. In a 1967 article H.G. Darwin noted that many types of "use" or "exploitation" to use the French wording, are inconceivable without appropriation of some degree at least of any materials taken. Thus, mineral deposits can hardly be explored without appropriation. But we are here concerned not with gravel or minerals on the sea bed but with the surface of the Moon. And it is sometimes said that, if the Moon consisted entirely of diamonds, it would not be profitable for anyone to go there to pick them up. [193]

******AT: Ks******

AT: Ks that reject the state

Use of the state is key to garner benefits of space exploration

Major **Willson** (B.A., C.W. Post College; J.D., Touro School of Law; LL.M., The Judge Advocate General School) is the International & Operational Law Attorney, Army Space Command, Colorado Springs, Co. 20**01** (An Army View of Neutrality in Space: Legal Options for Space Negation, lexis)

The State is ultimately responsible for all space activities originating or controlled from its territory. This section discusses who may be held responsible for the activities of satellites in space. With reference to our hypothetical example, it is important to establish Passivaland's responsibility for the activities of the commercial company HERCULES located within the borders of Passivaland. Under the laws of neutrality the Nation-State is normally not held responsible for the activities of commercial companies located within its borders. [52] International law only requires the neutral State to restrict the actions of its citizens or commercial entities in very limited circumstances. If Passivaland, under the laws of neutrality, were able to claim immunity from responsibility for the actions of HERCULES, the U.S. would be limited in its recourse against HERCULES. This is because the ground components are located within Passivaland's borders and the satellite is considered to be under the jurisdiction and control of Passivaland. [53] Establishing that Passivaland is responsible for the activities of HERCULES may allow the U.S. to claim Passivaland has breached its status as a neutral and attack its territory or assets, including a satellite in space.Under international law, the protection afforded neutral territory is "inviolability." [54] In addition to this provision, several other principles emerge from an analysis of the four relevant treaties dealing with outer space. The next two sections analyze these other principles, drawn from the following treaties: The Multilateral Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies (Outer Space Treaty); [55] the Convention on Registration of Objects Launched Into Outer Space (Registration Convention); [56] the Convention on the International Liability for Damage Caused By Space Objects (Liability Convention); [57] and the Agreement on the Rescue of Astronauts, the Return of Astronauts, and the Return of Objects Launched **[*187]** Into Outer Space (Rescue Agreement). [58] These treaties constitute the neartotality of law relating to outer space. An analysis of these treaties reveals the signatories' clear intent to hold the State, and not the individual or commercial entity, responsible for all activities in and from space.The Outer Space Treaty, the first treaty relating exclusively to space, was the precursor for the other treaties listed above, as well as others. [59] This Treaty is important because it holds States responsible for supervision, jurisdiction, control, and damage caused by all space objects the State has registered regardless of who owns and operates the object. [60] Article VI imposes upon States the responsibility to supervise all "national" activities conducted in space by a government or private entity. [61] This article ensures "parties cannot escape their international obligations under the treaty by virtue of the fact that activity in outer space or on celestial bodies is conducted through the medium of non-governmental entities or international **[*188]** organizations." [62] Additionally, Article VI requires authorization and supervision by the State of registry for non-governmental activities in space. [63]This article supports the conclusion that States are ultimately responsible for space objects, thus allowing the U.S. to hold Passivaland directly responsible for the space activities of the commercial companies located within its borders, such as HERCULES. These concept is similar those developed in the United Nations Convention on the Law of the Sea III (UNCLOS III). Under UNCLOS III, all ships shall sail under the flag of one State only, and every "State shall effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag." [64] This includes the State maintaining a register of all ships, which fly its flag. [65] The drafters of the Outer Space Treaty clearly intended to hold States responsible for supervising all space activities, outer space being akin to international territory similar to the high seas, just as States are responsible for the conduct of ships flying their flag. [66]Finally, according to Article VIII, regardless of where in space an object is, the State on whose registry it appears retains jurisdiction and control over it. [69] The registry, discussed below under the Registration Convention, is the document created by a State upon launching an object into space. [70] If the launch is a private commercial launch, the object is registered to the launching State. If two or more States are involved in the launch, they shall decide among themselves which one will register the object. [71] This article along with Articles VI and VII of the Outer Space Treaty, require States to take responsibility for and supervise all space-related activities, whether conducted by the government or private industry. The three remaining space treaties outline in more detail the specific liability and responsibility of the State as first articulated by the Outer Space Treaty.

*******AT: DAs/Case Turns******

Space Mil Bad

Space race with China inevitable

Space race with China is inevitable, the U.S. must act now to maintain leadership and foment future cooperation.

David **Leonard**, Senior Space Writer for Space.com, Oct. 17, **2003** (Friendly rivalry or new space battle?) http://msnbc.msn.com/id/3226820/

The landmark space voyage is seen as China's opening volley in what policy analysts anticipate will be an ever-expanding agenda of human space exploits. China's Shenzhou 5 trek marked the fifth flight of the craft in four years' time, and the first to carry a pilot.

But to what degree does China's historic sojourn into space signal military intentions**,** a hungering for space cooperation, or just a public morale boost fueled by nationalistic get-up-and-go? Erich Shih, a visiting fellow at the Brookings Institution's Center for Northeast Asian Policy in Washington, sees the success of China's first human spaceflight as a huge boost to the Chinese people's sense of national pride. "It is also a boost to China's international image," Shih said, and "shows the world that China has every potential to become the next power center in East Asia."

Shih said, however, that one successful human space flight is not going to change China's present international pecking order. "But it does point out a future direction … that China is moving up through the ranks," he said.

For the Chinese it's a very historic event, said Marcia Smith, a policy analyst at the Congressional Research Service in Washington. "It demonstrates that they have the technological ability to put humans into space. Where it all leads, I think it's still up in the air," Smith said.

Bates Gill, the Freeman Chair in China Studies at the Center for Strategic and International Studies, contends that the Shenzhou 5 mission is not "Sputnik II" or the start of a new "space race."

"Nevertheless, being the first developing-world country to put a man in space gives China some bragging rights and brings it a step closer to its claims to be accepted as a 'Great Power,'" Gill said.

Gill said that, for the near-term, the Shenzhou 5 flight will resonate most in China, boosting the country's national pride and the Communist Party's hopes for legitimacy. Over the longer term, he added, if Beijing's commitment to a robust space program continues to grow, China's strategic missile modernization will steadily realize increasing technological benefits.

Lewis said one issue is whether Beijing or Washington will "overreact" to the successful Shenzhou 5 flight and turn it into a new source of competition. Another issue, he added, is whether the United States "will be embarrassed about the disarray in its own manned space program."

"The Chinese have been promising to deliver humans to the lunar surface as long as they've been talking about putting a man in orbit," Dickson said. When and if it becomes apparent that this is China's goal, that will have a ripple effect in NASA plans, he said.

"I think the U.S. will have to seriously consider getting back into the business of manned space exploration. It is hard to imagine that the U.S. will allow the Chinese, or the Chinese in partnership with the Russians, to explore and exploit the moon. It also means that for the first time since Richard Nixon was in the White House serious talk can resume about sending humans to Mars," Dickson said.

Perhaps humans will be walking on the moon again in 2007, Dickson suggested, on the 50th anniversary of the Sputnik launch which started it all.

Space Race Inevitable

"The first thing I thought about when I heard the news [about Shenzhou 5] was Sputnik. The second thing was the fable about the race between the tortoise and the hare," Dickson said.
"In terms of non-political results, robotic spacecraft are more productive. Will Chinese advocates of robotic flights now face a powerful 'man in space' lobby like their American counterparts?" Coopersmith said.
"It will be very interesting to see how this launch plays in Taiwan and Russia," Coopersmith added. "Indeed, how will the Chinese government exploit the Shenzhou flight for domestic and foreign political benefit?"
On the other side of the equation, China participation in the station would lend financial and technical support for the troubled space station. "The Bush administration, restricted financially by the growing budget deficits it has created, will correctly argue that cooperating with China is less expensive than competing with it," Coopersmith said.
The Shenzhou 5 landing and safe return of the taikonaut is an event that has several strategic implications for the United States and the international community.
That's the view of William Martel, professor of National Security Affairs and the chair of space technology and policy at the Naval War College in Newport, R.I.
Firstly, Martel said, China has now entered the ranks of the "first tier" states: "In terms of prestige and technological ability, China is now of the primary players in space. This, by itself, has significant implications for the U.S. and its position of unquestioned strategic superiority in space." Martel said that China can be expected to accelerate the pace of its space program.
"Now that China has passed the human milestone of putting someone in space — and bringing him back home safely — China will correctly conclude that its program can be directed toward more manned missions. We should remember that China is actively promoting the idea of putting people on the moon. In addition, China will engage in other programs, such as new constellations of satellites, a new 'Hubble-like' space telescope, and so forth," Martel told Space.com.
Beginning in the late 1950s, the "space race" between the former Soviet Union and the United States was a powerful metaphor for showing off political, economic and cultural strengths. The "top that" nature of this rivalry — Vostok vs. Mercury, or Gemini vs. Soyuz — was muted over time after Neil Armstrong and Buzz Aldrin set foot on the moon. Ultimately, this 20th space superpower competition led to cooperative adventures, such as the international space station.
It remains to be seen how China may rekindle a 21st-century replay of Cold War one-upmanship as a new arrival in human space exploration.
Martel said that China clearly views the Shenzhou 5 success "as part of the early stages of more aggressive competition with the United States over its current position of supremacy in space."
"It is inevitable that China and the United States will begin to believe that they are engaged in some form of a space race," Martel said. "This can have significant military and technological implications for both sides. And this can have positive consequences. We should remember that the greatest advances in the U.S. space program occurred during the Cold War, when Washington and Moscow were directly competing in space.

Nuclear Power

Nuclear power in space is safe

Cassini proves that nuclear power in space is safe.

Roy **Britt**, Senior Science Writer, June 25, **2001**(Space.com, Nuclear Power Poised for Re-Entry into Space) http://www.space.com/businesstechnology/nuclear_space_010625-1.html

The last nuclear-powered spacecraft launched by NASA was Cassini in 1997. Antinuclear activists protested heavily against it, saying a launch accident or potential mishap in a 1999 Earth flyby en route to Saturn could kill billions of people who might develop cancer after contact with radioactive material.

Cassini scientists have called such claims "hogwash," saying that the radiation risk is less than normal background radiation in the air or in rocks.

Before the launch, NASA did admit that "there is a small potential for public health effects." But in 1997, Cassini project manager Richard J. Spehalski said the public was "badly misinformed by alarmists."

Spehalski said that even in the highly unlikely event that the 73 pounds of plutonium on board were somehow released into the atmosphere in a breathable form, and ingested, "the radiation dose an individual would receive over a 50-year period from that exposure would be ... 15,000 times less than a natural lifetime exposure."

In the end, there were no Cassini accidents.

Nuclear rockets won’t be critical until they’re well out of the atmosphere, eliminating any risk of contamination.

Nuculear Power is Safe in Space

Greg Clark, staff writer at space.com, May 21, 2000 (space.com, Will Nuclear Power Put Humans on Mars?, page#1)

Advocates of nuclear powered rocket engines point out that at the time of launch, there is almost no radiation released from the nuclear reactors. The nuclear-powered rockets aren't used to get off the ground, just to get to and from Mars, to generate power during the trip, and to brake into Mars and eventually Earth orbit on the return trip.

Plans call for the vehicles to be launched from Earth on traditional chemical rockets. The nuclear reactors would only be turned on, or "made critical" once the vehicles are parked safely in low Earth orbit, about 250 miles (419 kilometers) above the surface.

Each of the reactors would contain 77 pounds (35 kilograms) of enriched uranium, a concentrated form of the nuclear fuel that is found scattered in various amounts across the surface of the Earth. Thus, at the time of launch, the reactors in a new nuclear rocket are no more dangerous than large pile of dirt, Borowski said.

AT: I-Law

Space Mil doesn't violate I-law

Militarization of space and military defense of space operations and satellites in space against armed attacks are perfectly legal under international law.

Christopher **Petras**, Chief of Operations Law for United States Space Command, Fall 20**02** (*Journal of Air Law and Commerce*, The Use of Force in Response to Cyber-Attack on Commercial Space Systems—Reexamining "Self-Defense" in Outer Space in Light of the Convergence of U.S. Military and Commercial Space Activities, l/n)

In sum, while it can perhaps still be said that there are two competing definitions of "peaceful purposes" (one being "nonmilitary" and the other "non-aggressive"), [218] no State has ever formally protested the U.S. version of "peaceful" in the context of outer space activities. [219] Hence, within the United Nations a consensus has developed that "peaceful," as employed in the Outer Space Treaty, more specifically equates to "non-aggressive." [220] In practice, this has led to an understanding among the major space actors that all military activities in outer space are permissible, unless specifically prohibited by treaty or customary international law. [221] So, in a nutshell, application of Article 2(4) of the U.N. Charter in outer space makes it unlawful for any State to interfere in a hostile manner with the space assets of another State, [222] and while Article IV of the Outer Space Treaty prohibits States from stationing weapons of mass destruction or nuclear weapons in outer space, or engaging in aggressive military activities on the Moon or celestial bodies, it does not, in any way, invalidate the inherent right of national self-defense pursuant to customary law and Article 51 of the U.N. Charter. [223] Additionally, the Outer Space Treaty makes clear the fact that the State on whose national registry a satellite is carried retains "jurisdiction" over the satellite in space. [224] Therefore, inasmuch as "jurisdiction" may be viewed as equivalent to "sovereignty" in this context, [225] "the right of a State to defend objects under its sovereignty on [*1256] earth logically extends to outer space." [226] In this way, the right of self-defense in space can be viewed as analogous to protection of vessels on the high seas, [227] which Professor Brownlie aptly describes as follows: Vessels on the open sea may use force proportionate to the threat offered to repel attack by other vessels, or by aircraft. This right must rest on general principles whether the analogy of vessel and state territory is accepted or not...Nor can there be any doubt that the armed forces of the flag state may use reasonable force to defend vessels from attack whether by pirates or forces acting with or without the authority of any state. [228]And so, just as the right of the State to forcefully defend vessels attacked on the high seas extends to all vessels registered in the State (i.e., without regard to whether the vessel that is the target of the attack is a State or private instrumentality), so too must the State's right to defend satellites in space apply equally to all satellites carried on its national registry, including commercial satellites. [229]From the foregoing discussion, one can reasonably conclude that - pursuant to the inherent right of self-defense, which is affirmed under Article 51 of the U.N. Charter - the "flag state," or [*1257] more appropriately in the case of satellites, the "State of registry," [230] may use armed force to defend those satellites carried on its national registry (including commercial satellites) against attack by another State. [231] However, since the right of self-defense can only be exercised against an armed attack or its imminent threat, the question remains whether "cyber-attack" constitutes an "armed attack."

Space Mil doesn’t violate I-law

In the context of international law, the United States is justified those in self-defense measures, including actions of war, which it deems appropriate due to the cyber-attacks it has suffered.

Christopher **Petras**, Chief of Operations Law for United States Space Command, Fall 20**02** (*Journal of Air Law and Commerce*, The Use of Force in Response to Cyber-Attack on Commercial Space Systems—Reexamining “Self-Defense” in Outer Space in Light of the Convergence of U.S. Military and Commercial Space Activities, Pg. 18)

[*1259] On the key issue of whether cyber-attack is commensurate with the use of armed force, Professor Brownlie's discussion of the "use of weapons which do not involve any explosive effect" merits special consideration. [244] Brownlie proposes that weapons (such as biological and chemical weapons), which do not employ the force of shock waves and heat associated with more orthodox weapons, may nevertheless be assimilated to the use of force on two grounds: "In the first place the agencies concerned are commonly referred to as 'weapons' and forms of 'warfare'... [and] the second consideration [is] the fact that these weapons are employed for the destruction of life and property." [245] By analogy, "cyber-attack" is similarly viewed as a weapon [246] in the arsenal of "Information Warfare." [247] What's more, regardless of whether a satellite is struck by an ASAT weapon (be it a nuclear burst, kinetic weapon or high-energy particle beam) or a computer virus, the effect is the same - crippling of the satellite and/or its function. Under Brownlie's formulation then, cyber-attack on a satellite does indeed equate to the use of armed force.

Yet, notwithstanding the fact that cyber-attack can be objectively likened to "armed force," there is still no generally recognized definition of what constitutes an "armed attack." [248] Consequently, whenever the justification of self-defense is [*1260] raised, the question becomes one of fact - i.e., are the measures taken in self-defense necessary and proportionate in relation to the apparent threat? [249] And, in general, the determination of whether those conditions are met will, at least initially, be left to the State resorting to self-defense. [250] That is not to say, however, that any unilateral use of force can be declared to occur in response to an armed attack and be de facto "justified" as self-defense pursuant to Article 51. [251] For, once again, the U.N. Security Council is empowered by the Charter to order termination of the self-defense measures, if it so decides. [252]

Short of a direct hostile attack on another country’s forces, any use of weapons or logistical support in space is legal under international law.

Christopher **Petras**, Chief of Operations Law for United States Space Command, Fall 20**02** (*Journal of Air Law and Commerce*, The Use of Force in Response to Cyber-Attack on Commercial Space Systems—Reexamining “Self-Defense” in Outer Space in Light of the Convergence of U.S. Military and Commercial Space Activities, pg. 55)

n295. See Dinstein, supra note 131, at 181-183; see also supra note 248 and accompanying text; compare Nicaragua v. U.S., supra note 162, at 543 (Jennings, J., dissenting) ("It may readily be agreed that the mere provisions of arms cannot be said to amount to an armed attack. But the provision of arms may, nevertheless, be a very important element in what might be thought to amount to armed attack, where it is coupled with other kinds of involvement. Accordingly, it seems to me to say that provision of arms, coupled with 'logistical and other support' is not armed attack is going much too far. Logistical support may itself be crucial. According to the dictionary, logistics covers the 'art of moving, lodging, and supplying troops and equipment'... If there is added to all this 'other support,' it becomes difficult to understand what is, short of direct attack by a State's own forces, that may not be done apparently without a lawful response in the form of... self defense.").

Space Mil Doesn't Violate I-Law

Adhering to international law weakens US national security and hegemony

Savit et al, counsel, Blank Rome Comisky & McCauley LLP, **Summer 2002** (PUBLIC INTERNATIONAL LAW: Aviation and Aerospace: Law and Policy Developments The International Lawyer Summer, 2002, lexis)

The 2001 Space Commission predicted that the United States would be tested over time by, among other things, attempts by other nations to restrict U.S. space activities through international regulations. n58 The United States continues to struggle with resolving the tensions created from the necessity of balancing its national security concerns--as implemented through, among other things, its technology transfer mandates--with its need to ensure the continued viability and competitiveness of the U.S. commercial space sector. As it continues to work on resolving these critical issues, it should be kept in mind that continued contention will weaken our efforts with regard to achieving U.S. national security and foreign policy objectives by concurrently providing a window of opportunity to foreign governments to further impede U.S. industry by enacting their own regulations that amplify the adverse effects of the U.S. domestic policy and regulations.

Outer Space Treaty allows nations to exploit space for their own interests

Ezra J. Reinstein, Associate, Kirkland & Ellis,1999, ("Owning Outer Space", Northwestern Journal of International Law & Business, lexis)

The United Nations' Committee on Peaceful Uses of Outer Space ("COPUOS") has developed the current law of space, such as it is, in a series **[*66]** of treaties. [40] Any look at the property law of outer space must begin with the Outer Space Treaty ("OST"). The OST was the first binding international agreement on the law of space, and it still provides the guiding principles of space property law. [41] One-hundred and two nations, including the United States and Russia, ratified the OST, [42] and this wide acceptance has given it the character of binding international law even on those countries who have not ratified it.
As we have seen, the OST was born, along with most other space law, in the context of Cold War paranoia. The "value" of space law, according to Robert Crane, the then-Director of the Duke University Space Institute, was "as an instrument to deny control of outer space to any single power." [43] In our post-Cold War world, old rivalries and simple inertia must not be permitted to prop up a legal system. We must take a fresh look at the Outer Space Treaty, and re-write it.The Outer Space Treaty's take on property law is oddly conflicted. On the one hand, the OST seems to endorse some property rights in space. At the very least, it pays lip service to the "exploration and use" of outer space in its Preamble and Article I. On the other hand, the OST declares that all such exploration and use "shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and shall be the province of all mankind." [44] Thus the Outer Space Treaty seems to acknowledge the rights of nations and persons to exploit space, but subjects it to vague qualifications about benefiting all nations and mankind generally.

The Outer Space Treaty is too vague to prohibit US space militarization

Sean R. **Mikula**, Lawyer and former Military Intelligence Officer,**2001,**(Blue Helmets in the Next Frontier: The Future is Now,The Georgia Journal of International and Comparative Law, lexis)

The Outer Space Treaty, [171] adopted by the U.N. General Assembly in 1966 and which entered into force in 1967, has come to be considered the "Magna Carta" of international space agreements. [172] Despite the preeminence of this Treaty, however, it does not adequately articulate the limits of acceptable military activity in space, [173] thereby opening the door to varying state interpretation. Disparate interpretation increases the probability of inconsistency in compliance. The Treaty's inadequacies also complicate the assessment of ISF compatibility. Amendment to the Treaty is necessary in order to clarify the intent of the signing parties. [174] In addition, account must be made for technological advances that have occurred since the drafting of the **[*566]** Treaty. [175] If an ISF is to be brought to fruition, still further amendment of the Treaty may be necessary in order to permit the ISF to accomplish its mission.

Space Mil Doesn’t Violate I-Law

Space weapons do not violate international agreements

Michel **Bourbonniere** winter 20**05** Southern Methodist University School of Law, Journal of Air Law and Commerce NATIONAL-SECURITY LAW IN OUTER SPACE: THE INTERFACE OF EXPLORATION AND SECURITY, lexis

According to the OST, State Parties are required to undertake appropriate international consultation before proceeding with any activity or experiment should the State Party have reason to believe that such activity or experiment which is to be carried on in outer space by the State of its nationals would cause potentially "harmful interference" with the "peaceful exploration and use" of outer space by other State Parties. The term "harmful interference" is not defined in the OST. Could the term "harmful interference" be interpreted to encompass space weapons? Such an expansive interpretation of the term would most probably be considered incorrect, as the limitation of space weaponry is specifically dealt with in Article IV. In accordance with a "lotus" type analysis, space-capable weaponry is not specifically prohibited in Article IX and a fundamental premise of international law is that what is not specifically prohibited is permitted. Could the term be interpreted as covering belligerent rights and the effect of space weapons? Although the term "activity" can, from a grammatical perspective, be interpreted as encompassing belligerent rights, such an interpretation would most probably be considered as jejune, as the OST was not meant to change the law governing the means and methods of warfare. Nonetheless, it is reasonable to argue, and most would probably agree, that the term could encompass effects that may result from the testing of space weapons in outer space. Thus, should a State Party have "reason to believe" that the testing of such weapons "would cause potentially harmful interference," the State Party would likely have to undertake appropriate international consultations before proceeding with the tests. However, because the concept of "harmful interference" is not defined, states have somewhat of discretionary latitude in their actions. It can also be cogently argued that the obligation to proceed with consultations presupposes a reciprocal duty to cooperate on the part of the affected State Party. At the very least, the affected State Party likely has, to a degree, a duty to respond to the consulting State Party.

Non-unique—the US already withdrew from the ABM treaty

Michel **Bourbonniere** winter 20**05** Southern Methodist University School of Law, Journal of Air Law and Commerce NATIONAL-SECURITY LAW IN OUTER SPACE: THE INTERFACE OF EXPLORATION AND SECURITY, lexis

The historical events have forced an evolution in the space national-security normative matrix. The evolution has occurred in various ways. For example, in reaction to events, certain State actors have sought to alter the interpretation of normative instruments. The reinterpretation of the ABM was perhaps the most eloquent example of such a reaction. Another reaction to change has been States' withdrawal from certain international agreements deemed inadequate within the new security context. Perhaps the best example of such a reaction is the United States' withdrawal from the ABM Treaty. Other reactions followed. The Chinese and Russians have reacted by attempting to create new normative instruments by proposing a treaty on the Prevention of an Arms Race in Outer Space. On the institutional level, certain institutions are experiencing difficulties in adapting to these changes. Perhaps the best example is the Conference on Disarmament, which is presently stalemated in a diplomatic zugzwang.

AT: Space debris

US can get rid of space debris

Steven A. **Mirmina, sr**. attorney, July **2005**,(The American Society of Intl LawAmerican Jrnl. of Intl Law, p. lexis)

One efficient way that individual states can implement measures to reduce orbital debris is through the adoption of national measures, which could be done by promulgating and enforcing an effective national regulatory system. Subsequently, this unilateral commitment to enforce national measures could become more widespread if states were to negotiate and conclude a series of parallel unilateral commitments to mitigate debris proliferation, as was done in the context of weapons under the MTCR and the Wassenaar Arrangement.

The US already has programs controlling space debris

Finch ***(Edward R.,attorney, former Special Ambassador to Panama, an Editor of Journal of Space Law, an elected member of International Academy of Astronautics and of Board of Governors of National Space Society, ILSA Journal of International & Comparative Law, THE FUTURE OF WORLD PEACE AND OUTER SPACE, Spring*** *1999,* ***lexis)***

Many in government and in diplomacy point to the technical and legal voluntary compliance programs, laws, regulations, and decrees of nations, in their own self- interest, to control this rapid increased spread of space debris. The United States has promptly and voluntarily complied in United States Presidential Executive Orders, and in Department of Defense, Department of Transportation and Department of Commerce work to measure, model, reduce, control, and mitigate space debris. The subject is under continued national and international review. In United Nations General Assembly document A/AC.105/C.1/L.217 of 12th January, 1998 states, "The (voluntary) control measures to be considered fall into two categories; (1) those requiring minimal impact on the design and operations, and (2) those requiring significant changes in hardware or operations." Neither category of measures require development of new technology. Measures of Category I should be applied immediately, while measures of Category II should be applied by all space operators from an agreed time point onwards.

Space debris is inevitable

Russell **Hoffman**, host of High Tech Today, 1/23/19**98**,
http://www.animatedsoftware.com/spacedeb/spacedeb.htm

> And--I've only touched the surface of this problem. For example, scientists recently calculated that the problem is so bad that in the future, near-earth orbit space debris will collide with itself so much and so often that there will be a permanent cloud of debris rather than the millions of discreet items that exist now. In other words, without doing a thing to add more debris to the equation, we've put so much up there the equivalent of a nuclear explosion will occur--actually is occurring--wherein pieces of debris collide with other pieces of debris, creating more pieces of debris, which in turn collide with each other, creating still more debris.

Militarization induced space debris doesn't ruin satellites or space exploration

SpaceDaily, April 22, 20**02**, http://www.spacedaily.com/news/milspace-02l.html

> Space-based missiles will generate huge amounts of small debris particles, said Primack. Some will arise from weapon explosions, but even more will come from the resulting small projectiles hitting larger objects already in orbit and fragmenting them. According to Primack, so many bits of junk could eventually be orbiting the Earth that no satellite or space station could be operated in Low Earth Orbit, 200 to 1,250 miles above the planet. Space shuttles and other space vehicles would need heavy armor to pass through the debris. Most communications satellites are located in higher orbits that would not be as affected by the debris, but some, such as those for mobile phones, are in lower orbits and already in danger. No methods to remove space debris now exist.

AT: Space Debris

Space debris will impact into tiny pieces

Joel R. **Primack**, Professor of Physics at the University of California, Santa Cruz, May 28-29, 20**02**, http://physics.ucsc.edu/cosmo/Mountbat.PDF

> With enough orbiting debris, pieces will begin to hit other pieces, fragmenting them into pieces, which will in turn hit more pieces, setting off a chain reaction of destruction that will leave a lethal halo around the Earth.

Shielding protects objects against small debris

Jennifer **Seymour**, J.D., Georgetown University Law Center, Spring 19**98**, Georgetown International Environmental Law Review

> Attempts to protect newly-launched space objects from fragmentation or damage due to collisions with debris focus largely on shielding techniques. These employ the installation of buffers on the outside of space objects and, in the case of some U.S. space shuttles, on the inside of the cargo bay doors "to protect the coolant pipes of the shuttle's heat radiator system . . . ." "Shielding, while an added expense, can protect a spacecraft against some of the smaller items. The international space station that begins assembly in orbit [in August 1998 is protected against items up to almost an inch by sandwiched layers of foil and fabric similar to bulletproof vests." While this protection does not prevent larger objects from damaging space objects, most of the collisions in near-earth orbit involve debris particles that are smaller than four inches.

AT: Econ DA

Exploring and extraction of Space Resources will help boost the global economy.

Kelly M. **Zullo**, J.D., Georgetown University Law Center, July **2002**, (Georgetown Law Journal, 90 Geo. L.J. 2413, lexis)

The satellite industry provides valuable communications, remote sensing, and navigational services for the benefit of all nations. In addition to these valuable services, the satellite industry also provides thousands of employment opportunities throughout the world.In 1998, the number of private commercial space launches from the United **[*2437]** States exceeded the number of government missions. [181] The worldwide commercial satellite business is a $ 77 billion industry, providing over 77,000 highwage, high-tech jobs. [182] Roughly half of the revenue from the commercial satellite business is earned outside of the United States and approximately half of these jobs are located outside of the United States. [183]The Global Positioning System (GPS)--which reached its full operational capacity on July 17, 1995--is a "satellite-based radionavigation system" that "permits land, sea, and airborne users to determine their three-dimensional position, velocity, and time 24 hours a day, in all weather, anywhere in the world with a precision and accuracy far better than other radionavigation systems available today or in the foreseeable future." [184] Originally developed for military use, GPS has myriad civilian applications, including: air, road, rail, and marine navigation, mapping, precision agriculture and mining, oil exploration, environmental research and management, telecommunications, electronic data transfer, construction, hiking, and emergency response. [185]The United States Department of Defense spent over $ 10 billion to develop GPS, [186] and spends approximately $ 500 million per year to maintain and operate the system. [187] Despite this expense, the United States provides free GPS access to the citizens of all nations on an equal basis. [188] GPS benefits mankind by providing more than just valuable navigational assistance. GPS also stimulates **[*2438]** the economy, serving over four million users worldwide. [189] The worldwide market for GPS goods and services was $ 8.4 billion in 2001 [190] and is expected to at least double to $ 16 billion by 2003. [191]The Outer Space Treaty provides suitable guiding principles upon which a space property rights framework may be built. While prohibiting appropriation of celestial bodies, the Outer Space Treaty allows space faring nations to have a degree of certainty with respect to ownership of objects launched into space and the material harvested from space. Furthermore, the Outer Space Treaty principle that space should be explored for the benefit of all mankind still allows space farers to reap a return on their investment. However, the Moon Treaty has introduced unacceptable ambiguities to the space property rights framework.

AT: CMR

Non – Unique – Armed forces and civilians increasingly dependent on same commercial space systems

Intoccia 2006 (Gregory, Lt Col Air Force Reserve, Houston Jor of Int'l Law, "Communications Technology, Warfare, and the Law: is the Network a Weapons System? Spring)

Despite such ambitious programs, most of the U.S. military's communications today are highly integrated with and dependent upon the nation's commercial communications infrastructure. [21] Approximately "[ninety-five percent] of the telecommunications of the [DOD] travel through the Public Switched Network," and a significant amount of both the operation and maintenance of military-owned network segments is currently handled by civilians on a contracted-out basis. [22] Further, the military community is becoming increasingly electronically interconnected. In recent years, the armed forces and civilian users have become increasingly dependent upon the same commercial space systems. [23] Because the U.S. military's own dedicated satellite communications systems cannot handle its increasing demands, the military has leased, and plans to continue leasing, commercial satellite communications capacity. [24] For instance, "DOD uses leased Intelsat circuits to **[*474]** supplement its capabilities; in fact, some DOD satellite command and control facilities routinely use Intelsat to relay data from its satellites." [25] Moreover, approximately "[sixty percent] of the satellite communications [requirements] of the U.S. military are provided by commercial entities." [26]

Bush Space Initiative

AT: Moon Focus Bad

The moon is the best immediate target, multiple reasons:

U.S. News 1/26/04 ["Shoot the Moon," pg. 48]

In spite of the uncertainties and inevitable trade-offs, space advocates mostly applaud Bush's plan. But some Mars enthusiasts aren't thrilled about the focus on the moon. Louis Friedman, executive director of the Planetary Society, grumbles: "I don't see how it's getting humans ready for another trip to Mars." Bush said the moon's low gravity will make it easier and cheaper to launch vehicles to Mars, but Friedman notes that "you still have to launch to the moon first," and it would be cheaper to launch a Mars craft from Earth orbit.

That's a fair argument, Logsdon admits, but there's a good political rationale for putting the moon first. "It's a good intermediate milestone. It's someplace to go that's close" while readying for a Mars trip 30 to 40 years in the future. Lunar fans add that the moon offers a chance to test equipment for human habitation of deep space. And, Launius says, "it's also a good place for science." University of Arizona astronomer Roger Angel, for example, advocates building giant telescopes near the moon's south pole. There, sunlight for solar power hits mountain peaks almost continuously while the deep shadows would help chill detectors to near absolute zero, to pick up faint light from the most distant stars.

China And Germany feel threatened by US Satellites

However, the growing dependence on space for commerce and national security means that the United States should prepare soon to protect its assets in space. For example, communications satellites have already been deliberately disrupted--Tongasat was jammed because of disagreements over possession of a geosynchronous orbit slot.[i] Germany and China have developed "inspector" satellites. Germany developed its satellite in a partnership with Russia to inspect the MIR space station for damage. While the satellite failed to complete its mission, most of the technology necessary for performing operations near other satellites was demonstrated, and these same technologies can now be used to disrupt U.S. satellites.[i]

To achieve Space Superiority we must have a trained military

Larry J. Schaefer, Lt. Col., USAF, August 2002 (Center for Strategy and Technology, Sustained Space Superiority: A National Strategy for the United States, page#27)

The concept of military administration includes, "all aspects of military recruitment, training and armament" that pertains to developing a national strategy for space superiority.[i] For space, the principal challenge is training. Three primary areas need to be addressed for training the military as part of a national strategy for space superiority.

United States Needs to Maintain Space Superiority

Larry J. Schaefer, Lt. Col., USAF, August 2002 (Center for Strategy and Technology, Sustained Space Superiority: A National Strategy for the United States, page#33)

It is imperative for the United States to develop and follow a national strategy for sustained space superiority in view of the increasing importance of space in U.S. national security. Strategy cannot succeed unless the nation and its leadership have realistic expectations about the value of space. As the United States increases its reliance on space capabilities, it is important to understand that the commercial revenues generated by space programs are likely to continue to grow as the civil sector engages in significant efforts to exploit space. As the intelligence and military sectors acknowledge how critical information superiority is to U.S. national security, it is essential for the United States to develop and maintain space superiority.

United States Will Maintain and Modernize Space

Larry J. Schaefer, Lt. Col., USAF, August 2002 (Center for Strategy and Technology, Sustained Space Superiority: A National Strategy for the United States, page#7)

Page 7According to the Department of Defense portion of the national policy states, "Consistent with treaty obligations, the United States will develop, operate and maintain space control capabilities to ensure freedom of action in space and, if directed, deny such freedom of action to adversaries. These capabilities may also be enhanced by diplomatic, legal or military measures to preclude an adversary's hostile use of space systems and services. The U.S. will maintain and modernize space surveillance and associated battle management command, control, communications, computers, and intelligence to effectively detect, track, categorize, monitor, and characterize threats to U.S. and friendly space systems and contribute to the protection of U.S. military activities."

Topicality Defs

The current Department of Defense Space Policy defines **space superiority** as, “The degree of dominance in space of one force over another, which permits the conduct of operations by the former and its related

land, sea, air, and space forces at a given time and place without prohibitive interference by the opposing force."

[i] The term **superiority**, rather than supremacy, is a more achievable and sustainable goal, since supremacy suggests a hegemonic or monopolistic position that would require a significant increase in national funding.

The "**militarization of space**" refers to the use of space assets to support military activities, which includes communications, precision navigation, weather reporting, and other sensor information.

[i] The "**weaponization of space**" refers to the placement of weapons in space, the use of weapons from space, and weapons transiting space, such as ballistic missiles. The last element is important because it allows the United States to argue that space was weaponized when the first ballistic missiles were developed, and is consistent with the concept of placing weapons in space

Strategic culture consists of the socially constructed and transmitted assumptions, habits of mind, traditions and preferred methods of operations--that is, behavior--that are more or less specific to a particular geographically based security community."