ST. Mark’s TS Counterplans (1/11/12)

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## 1NC Baker Institute CP (Vision for Space Exploration)

**Text: The United States federal government should restructure the Orion program to reduce the size of the crew to three members, shift the Orion program to an X-38 lifting body with land-landing capability, and reinstate the Ares V heavy lift vehicle program.**

**The counterplan solves all of the case and the solvency deficits but does not bring back Ares I—that’s critical to shift NASA’s focus to international cooperation and HLVs—turns the case.**

**Abbey and Lane 9** (Neal Lane is the Malcolm Gillis University Professor and Senior Fellow of the James A Baker III Institute for Public Policy at Rice University and served in the Clinton Administration as Science Advisor to the President and Director of the National Science Foundation. George Abbey is Senior Fellow of the James A Baker III Institute for Public Policy at Rice University and former Director of the NASA Johnson Space Center in Houston Texas “Maximizing NASA’s Potential: In Flight and on the Ground Recommendations for the Next Administration.” http://bakerinstitute.org/publications/SPACE-pub-ObamaTransitionAbbeyLaneMuratore-012009.pdf //Donnie)

This is by far the most challenging element of the five-point plan. One approach to restructuring would be to switch the early focus from the moon and Mars to enhanced support of the international space station. A clearly stated rationale for the ISS, such as continued international cooperation on the peaceful uses of space, scientific research in particular, would be important. Extending space shuttle flights through 2015 would reduce reliance on Russia for transportation to the ISS and provide the large up-and-down mass capability needed by all ISS partners. The Constellation program would be restructured by canceling Ares I. Ares I, if successful, doesn’t offer much of an advantage over other Earth-to-orbit launchers and its development will take too long and use valuable funds. In addition, canceling other lunar surface-related work— including the lunar lander, the space suit, the rover, and other habitat and surface systems work—would focus the NASA workforce on immediate challenges. These activities can be resumed at an appropriate time in the future. Canceling human-Mars discussions would be a pragmatic statement that recognizes the incredible challenges of a Mars mission. Robotic missions to Mars should be flown exclusively, at least for the next decade, with extensive surface exploration by rovers. The present Orion program would be restructured to reduce the size of the new spacecraft to a three-member crew, Apollo-sized vehicle or an X-38 lifting body vehicle with land-landing capability. The smaller-sized vehicle would be flown on an Ariane 5 or Delta IV launch vehicle, with a planned 2014 or 2015 launch to the ISS. ₪ stopped here at 16:54 ₪ Moving to one of these launch vehicles allows a more rapid deployment by decoupling the new spacecraft from the development of a new launcher such as Ares I. Development of the new spacecraft would be accelerated by reducing the crew size and the need for weight efficiency, and taking advantage of previous Apollo and/or X-38 development. This significantly reduces the technical risk in many key areas, such as thermal protection and parachutes. Weight and technical risk can be further reduced by designing the service module for ISS service missions, making it simpler. Europe and Japan should be invited to participate as Europe participated in the X-38 program. Parts would be provided in return for services (i.e., future launches to ISS). In order to ensure this international participation is meaningful and effective, the recommendations stated in the recent National Research Council report, “Beyond Fortress America,” should be implemented. This report provides an excellent assessment of the impact of building walls that compromise our ability to access global science and technology and that adversely affect our ability to compete globally. The report makes recommendations to reform the export control process, ensure scientific and technological competitiveness, and improve the nonimmigrant visa system that regulates entry into the United States of foreign science and engineering students, scholars, and professionals. It calls for immediate action “to stem a serious decline affecting broad areas of the nation's security and economy.” By not investing in a unique Ares I Earth-to-orbit human launcher, NASA will be positioned to take full advantage of emerging commercial Earth-to-orbit transportation services should they develop in the 2015-2020 timeframe. In our restructuring approach, the shift in near-term focus from lunar to ISS would be followed by building a capability for deep space asteroid or comet intercept as a longer-term focus based on an Ares V heavy lift vehicle. The Ares V heavy lift launch capability is critical to any further deep space exploration. By canceling Ares I, it should be possible to focus all of the agency’s launch vehicle development capability on designing the one launcher needed by the nation for future deep space work, and the one launcher not anticipated to be provided by the private sector. All options for providing an Ares V heavyweight launch capability will be studied, including liquid boosters, liquid fly-back boosters, and international cooperative options. This should include the evaluation of options such as proposed by the Direct Launcher concept that makes use of most of the existing shuttle hardware, including the two solid rocket boosters and the external fuel tank. The only key modifications would be an Apollo-like capsule at the top and an engine at the bottom of the external fuel tank. Although Ares also uses shuttle parts, it is essentially an entirely new rocket. The ability to fly to an asteroid would give the United States a lunar capability should one be needed in the future. A deep space mission, such as a human asteroid or comet intercept, would effectively demonstrate American leadership in space, should that be a concern in the face of a possible Chinese landing on the moon. It might even be argued that an American lunar return would do less to question U.S. space leadership than a more aggressive goal of performing a human asteroid intercept mission. To advance this and other concepts, a joint NASA-DOD propulsion research program should be initiated, as propulsion is a limiting factor in space exploration. An aggressive program focused on innovative advanced propulsion development has been needed for a long time. A restructured human spaceflight initiative should be premised on the idea that any future plans by the United States to return women and men to the moon, and someday to Mars, will need to be top national priority. It should involve many U.S. federal agencies, universities, and industries, and be fully international in scope. By restructuring the human spaceflight initiative, resources will be made available to allow NASA to contribute to other vital short- and long-term national priorities.

## 1NC Code of Conduct CP

**Text: The United States federal government should**

**- offer a Code of Conduct with enforcement mechanisms and transparency and verification measures for every country that agrees to all space-faring nations that prohibits harmful interference against human-made space objects and reduces practices that contribute to the weaponization of space.**

**- propose to the UN Committee on the Peaceful Uses of Outer Space that Article IV of the Outer Space Treaty ought to be changed to ban kinetic kill vehicles, space-based laser weapons, and ASATs.**

**Revising the OST solves an arms race**

**Englehart** 8 (Alex B. Englehart, contributor to the Pacific Rim Law & Policy Journal at the University of Washington School of Law, January 2008, “COMMON GROUND IN THE SKY: EXTENDING THE 1967 OUTER SPACE T REATY TO RECONCILE U.S. AND CHINESE SECURITY INTERESTS”, Pacific Rim Law and Policy Journal, Vol. 17, Num. 1, p.133-157, Jack)

It will not take much to effectively update the Outer Space Treaty to deal with emerging threats related to the development and deployment of space weapons and ASATs. As discussed above,134 the relevant portion of Article IV of the Treaty currently reads “States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, install such weapons on celestial bodies, or station such weapons in outer space in any other manner.”135 It should be updated to read: States Parties to the Treaty undertake not to place in orbit around the Earth any objects carrying nuclear weapons, any other kinds of weapons of mass destruction, kinetic kill vehicles, or directed energy weapons, install such weapons on celestial bodies, station such weapons in outer space in any other manner, or attack objects in outer space with weapons based on Earth. Put simply, Article IV of the Treaty must be updated to ban not only weapons of mass destruction—as it currently does—but also kinetic kill vehicles, space-based laser weapons, and ASATs. These simple changes would make a world of difference, and could prevent catastrophe. In any case, they will save all sides the enormous trouble and expense that would be involved in a full-fledged arms race in space. Eventually the legal regime in space will need a more complete overhaul along the lines of UNCLOS III—by the 22nd century, humanity’s use of space could easily be as common and complex as its use of the oceans is today—but in the near to mid-term, amending Article IV of the Outer Space Treaty in the manner described would be enough to avert the worst dangers.

**The code of conduct solves satellites and weaponization**

**Krepon 7** - Co-founder and contributor to the Stimson Center (3/5, Michael, “Will the Bush Administration Endorse a Space Code of Conduct?”, Space News, http:www.stimson.org/pub.cfm?id=402, accessed June 21, 2011)

Support is growing for a specific kind of multilateral space agreement that borrows heavily from the Bush administration’s own preferences. The mechanism in question is a Code of Conduct for responsible spacefaring nations that could either take the form of political compacts or executive agreements among like-minded states that wish to continue to enjoy the national security and economic benefits that satellites provide. Like the Bush administration’s Proliferation Security Initiative, a Code of Conduct for space could be designed by a core group of states to clarify responsible and irresponsible behavior. The core group might then invite any other spacefaring nation that wishes to abide by these high standards to join the group.

The European Union has now joined Canada in endorsing a Code of Conduct for responsible spacefaring nations. The commercial satellite industry also has expressed a strong interest in “rules of the road” for space.

The Bush administration has further distanced itself from America’s friends and allies by continuing to insist that new multilateral agreements related to space are “unnecessary and counterproductive.” No other nation in the world has adopted such a negative stance. Saying “hell no” to new multilateral agreements for space seems particularly questionable after China’s irresponsible test of an anti-satellite (A-Sat) weapon that endangers spaceflight in low Earth orbit for decades to come. George Washington’s farewell address warned against indulging in “habitual hatred” resulting in a slavish animosity that leads the United States to “stray from its duty and interest.” Rejecting a Code of Conduct for space because it smacks of arms control would seem to violate Washington’s sound admonition. The Bush administration has not yet taken a position towards a Code of Conduct for responsible spacefaring nations. Because rules of the road for space make so much sense, and because the Bush administration has championed other codes of conduct to prevent proliferation, it might still join in the emerging consensus on this issue. The administration’s reasoning against new multilateral agreements for space boils down to five arguments, none of which applies to the Code of Conduct.  First, administration officials argue that there is no likelihood of an arms race in space, therefore, there is no need for new multilateral arrangements. It is true that an arms race is unlikely, since arms racing has now been replaced by asymmetric warfare. But an arms race is not needed to do lasting damage to space, as the Chinese A-Sat test demonstrated. We can now see clearly that it takes very few kinetic energy kill tests and A-Sat weapons to result in significant damage to low Earth orbit. New diplomatic initiatives are needed precisely because an arms race isn’t needed to prevent the peaceful uses of outer space. The second argument advanced by the Bush administration is that arms control is a vestige of the Cold War and not terribly relevant to contemporary security concerns. Again, there is partial truth in this argument, because classic arms control arrangements dealt with a superpower competition that ended with the demise of the Soviet Union.  What used to be known as arms control has now morphed into cooperative threat reduction agreements, including rules of the road clarifying responsible behavior. Semantic arguments aside, the administration has itself championed multilateral agreements in the form of codes of conduct to prevent proliferation, such as The Hague Code of Conduct, as well as the Proliferation Security Initiative. We do not have to argue over whether these codes of conduct constitute arms control to conclude that these creative arrangements were sensible initiatives.  A Code of Conduct for space also would be quite useful in making the Chinese kinetic-kill A-Sat test the very last of its kind. If codes of conduct relating to missiles and exports make sense for preventing proliferation – and do not, in the Bush administration’s vocabulary, constitute arms control – then surely a code of conduct also makes sense for activities in space. After all, troubling activities in space also could prompt vertical and horizontal proliferation on the ground.  The third argument that the Bush administration advances against new diplomatic initiatives for space activity is that there can be no agreed to definition of what constitutes “space weapons.” Moreover, verification is extremely problematic. Consequently, no multilateral agreement can be negotiated barring such weapons.  The administration is correct in pointing to the difficulties in defining and verifying space weapons. A code of conduct, however, focuses on activities, not on definitions of what constitutes a space weapon. For example, one key element of a Code of Conduct would surely be that responsible spacefaring nations do not engage in activities that deliberately produce persistent space debris, such as the Chinese A-Sat test.  This key element makes it unnecessary to define space weapons, since actions, not definitions, lie at the core of a rules of the road approach. Verification of noncompliance with this key element is quite straightforward, since it is very hard to hide the deliberate generation of persistent space debris.  The fourth argument advanced by the Bush administration to oppose new diplomatic initiatives for space is that the United States must preserve its right to self-defense – including the right to defend space assets. This argument is certainly valid, but it doesn’t justify rejecting a Code of Conduct. With such a code, the United States still would possess more capabilities than ever before to deter and, if necessary, punish states that take actions against U.S. satellites. The right of self-defense, however, is more likely to be invoked, and will be more difficult to execute, if there are no agreed rules of the road for outer space.  Lastly, the Bush administration contends that new diplomatic initiatives are unwise because U.S. freedom of action in space must not be constrained. By this standard, the Nonproliferation Treaty, the Outer Space Treaty, President Ronald Reagan’s Intermediate Nuclear Forces Treaty and President George H. W. Bush’s Strategic Arms Reduction treaties were all dreadful errors in judgment, since every one of these agreements limit the U.S. military’s freedom of action in some key respects. Using the Bush administration’s reasoning, the Geneva Conventions for U.S. armed forces also are unwise, as are codes of conduct long in place for the U.S. Army, Navy, Marines and gravity-bound Air Force. If freedom of action were the topmost U.S. national security objective, we would ditch all of these treaties and codes of conduct. Of course, no responsible political leader or public official would consider doing this. So why should we use this standard to oppose new diplomatic initiatives in space?

## 1NC CP Develop Not Deploy

**The United States federal government should develop a new National Space Policy that includes adopting a space assurance posture including but not limited to**

**- Create a council to advise the president on space policy**

**- Issue a declaration to not weaponize space, invite nations to give similar declarations, and sign and offer a Code of Conduct to all space-faring nations that prohibits harmful interference against man-made space objects and reduces practices that contribute to the weaponization of space, including [[[[(insert thing plan creates here, like: Solar Powered Satellites)]]] and tell spacefaring nations that if they fail to sign onto the Code of Conduct or cheat, the United States federal government reserves the right to [[[[[[[[[[[Insert aff mandate here or put “weaponize space”]]]]]]]]]] after one of them fight tests or deploys space weapons.**

**- Create enforcement, transparency, and verification measures for every country that agrees to the Code of Conduct and declare that the US will guarantee continued flow of information to any country whose satellite is destroyed by an ASAT.**

**- Use conventional capabilities including currently deployed ballistic missiles and lasers to disable space warfare capabilities of hostile countries including satellites and launch capabilities when they try to deploy them.**

**- Fund research and development programs for Expeditionary Space Force capabilities including Common Aero Vehicles, microsatellites, and launch-on-demand capabilities and [[[[[[[[[[[Insert aff mandate here or put “weaponize space”]]]]]]]]]]but don’t flight test or deploy such technology until another entity does so first and withdraw such capabilities when conflict ends.**

**- In the next review of the export act, reduce international regulations on the exports from commercial space entities and monitor exports of space technology in times of conflict.**

**Space assurance deters space provocations without deploying weapons**

**Krepon, Co-Founder at Stimson 4**—co-founder of Stimson, and director of the South Asia and Space Security programs (Michael, November 2004, “Avoiding the Weaponization of Space” http://www.stimson.org/images/uploads/research-pdfs/Avoiding\_the\_Weaopnization\_of\_Space.pdf, nkj)

A Better Alternative: Space Assurance

Instead of weaponizing space, a “space assurance” posture would offer a greater likelihood that essential US satellites will be available when needed. Adopting a space assurance posture above all requires the avoidance of dangerous military activities in space, including flight tests that simulate attacks against satellites and the deployment of ASAT and space weapons. Space assurance has many other mutually reinforcing components. One basic element is to maintain superior US conventional military capabilities. Potential adversaries must understand clearly that if they damage, or destroy US satellites, they will not alter the outcome of battle. Rather, they will only suffer more casualties by impairing satellites that improve targeting and reduce collateral damage.

A second key element of space assurance is increased situational awareness in space so US military leaders can quickly identify developments that could cause potential harm to satellites. This includes improved monitoring capabilities for objects in space, whether small satellites operated by foreign nations or space debris. A corollary requirement to improved situational awareness is improved intelligence capabilities relating to the space programs of potential adversaries.

The more US officials know or can find out about space-related activities of potential adversaries, the more they can strengthen deterrence against unwelcome surprises. Another way to strengthen deterrence would be to adopt a hedging strategy against the initiation by others of space warfare flight tests and deployments. One key aspect of a hedging strategy is already in place. In extremis, the United States could use long-range ballistic missiles and lasers designed for other missions to disable or kill satellites. These residual, or latent, space warfare capabilities, which are growing with the advent of missile defense interceptors, have long existed. Rather than leading inexorably to the flight-testing and deployment of weapons specifically designed for space warfare, they have served as an insurance policy while deterring unwelcome surprises.

Additional hedges can be taken in the form of research and development programs that stop short of flight testing. Potential adversaries can be expected to be working on their own space warfare initiatives behind closed doors, as is now the case with the United States. Ongoing research and development programs would shorten the timelines of flight-testing new initiatives if potential adversaries do not emulate US restraint. Not every research and development program is worthy of support, however, particularly kinetic-kill programs that generate space debris.

An essential element of space assurance is the strengthening of existing norms against the flight-testing and deployment of space weapons. Many norms for responsible space-faring nations already exist, including prohibiting the placement of weapons of mass destruction in space under the aforementioned Outer Space Treaty, helping astronauts in distress, registering space objects, accepting liability for damage caused by national endeavors in space, and acknowledging that the exploration and use of outer space should be carried out for the benefit of all countries and humankind.

The scope of existing norms needs to be expanded if space assurance is to be reinforced. Traditionally, the forum in which international norms are codified is the Conference on Disarmament (CD) in Geneva. This 65-nation body operates by consensus, however, and at best requires many years to reach agreement on treaty texts, which might then be stalled further in the process of ratification, as is now the case with the Comprehensive Test Ban Treaty. This reason is not sufficient to block or reject negotiations in the CD relating to the prevention of space weapons, but it does suggest the wisdom of reinforcing existing norms in quicker ways.

The development of a code of conduct establishing agreed “rules of the road” for responsible space-faring nations can expedite international efforts to prevent the weaponization of space. Many codes of conduct already exist in the form of bilateral or multilateral executive agreements. During the Cold War, the United States entered into executive agreements with the Soviet Union to prevent dangerous military practices at sea, on the ground, and in the air. The Bush Administration champions codes of conduct to prevent ballistic missile proliferation and terrorism. A similar approach could reinforce space assurance.

The US-Soviet Incidents at Sea (INCSEA) accord, signed in 1972, has served as a model for comparable agreements signed by more than 30 other sea-faring nations. The INCSEA agreement established important rules, including pledges to avoid collisions at sea, the use of blinding light to illuminate the bridges of passing ships, and interference in the “formations” of the other party. Washington and Moscow subsequently signed the Prevention of Dangerous Military Activities (PDMA) agreement in 1989. The PDMA agreement covers, among other dangerous military activities, “interfering with command and control networks in a manner that could cause harm to personnel or damage to equipment of the armed forces of the other Party.” It establishes procedures to deal with boundary incursions and permits the designation of “special caution areas.”

Space also deserves “rules of the road” to help prevent incidents and dangerous military activities. Such a code of conduct would include provisions against simulated attacks; the flight-testing and deployment of space weapons; dangerous maneuvers in space, except those for rescue, repair, and other peaceful purposes; and commercial interference, as well as requirements to mitigate space debris. 10

The definitions of space warfare, the scope of agreed constraints, and the ability to monitor them have plagued every prior initiative in this field. They will also bedevil efforts to craft a code of conduct. Nonetheless, this effort is worth pursuing. The risks associated with pursuing a code of conduct for responsible space-faring nations are minimal compared to the risks of flight-testing and deploying space weapons.

The weaponization of space was avoided during the Cold War, even though both superpowers jockeyed for military advantage on virtually every other front. Space weaponry can also be avoided now, when the United States enjoys unparalleled agenda-setting powers. Existing norms against weaponizing space can be strengthened if Washington exercises restraint, adopts prudent hedges, and joins others in diplomatic efforts to pursue space assurance. The time is ripe to reinforce existing norms in space that have greatly benefited spaceaided commerce, scientific exploration, and the US armed forces.

**Creating expeditionary space force capabilities including Common Aero Vehicles solves air and space control without destabilizing space**

**Ruhm, Air Force Major, 3** (April 2003, Brian C. Ruhm, Reviewed by Everett Dolman, “FINDING THE MIDDLE GROUND: THE U.S. AIR FORCE, SPACE WEAPONIZATION, AND ARMS CONTROL”, http://www.au.af.mil/au/awc/awcgate/acsc/03-1394.pdf, nkj)

The Expeditionary Space Force

Where does this leave us? The arguments presented thus far seem to suggest that unless the US is able to utterly deny space to the weapons of potential adversaries or render those weapons strategically insignificant, it faces a hopeless situation. The key to escaping this conundrum is to recognize that space weapons per se are not destabilizing. It the vulnerability of either side’s weapons to attack that undermines stability. Even if the US establishes a survivable space weapon infrastructure, the vulnerability of its adversaries’ weapons creates instability, especially in times of crisis. Strangely, this suggests that the US has a vested interest in ensuring a degree of security for its adversaries’ space weapons as well as its own. 1 Short of a technology revolution, however, it is unlikely that space-based systems will ever become substantially less vulnerable to destruction from the multiplicity of kinetic and directed energy weapons that technology will soon make available. Given this situation, how does the US retain the ability to defend its own space assets, deny space to its adversaries, or use space as medium for strategic attack without creating a destabilizing operational environment?

The first step is to work toward an Expeditionary Space Force (ESF) capability. The ESF would consist of various systems that could be deployed from earth on short notice to provide specific space control or force application capabilities to the Joint Forces Commander (JFC). The obvious difference between the ESF concept and prevailing notions of space weapons employment is that ESF capabilities would only be deployed to space as threats warranting the employment of space weapons emerged. ESF would emphasize robust launch-on-demand capabilities, rapidly deployable assets, and maneuverable manned and unmanned vehicles.

Unilateral, US implementation of an expeditionary approach to space weapons would only have the effect of ceding the high ground of space to its adversaries, and that is not what this paper proposes. Rather, the US should adopt an ESF approach as one part of a coordinated and comprehensive strategy that would also entail changes to its larger space architecture, cooperative measures with other states, and revisions to the legal rights and obligations associated with space passage. Taken as a whole, this approach would reinforce international stability even as it provided the US with a robust means to defend itself from attack in or from space.

The motives behind the ESF in many respects mirror those that led to the Air Expeditionary Force (AEF) concept. As the US reduced the number of overseas bases and forward operating locations through the 1990s, AEF was a way to reduce its operational footprint without jeopardizing air power effectiveness. 2 Similarly, the ESF is a way of reduc[e]ing the US military footprint in space while retaining a potent operational capability. AEF responded to the dynamic and unpredictable threat environment that emerged in the wake of the Cold War. As described by The USAF Transformation Flight Plan: “The AEF CONOPS provides JFCs with fully capable, rapidly deployable air and space packages that can be tailored to meet the spectrum of contingencies. It will contain the full range of sustainable air and space power and ensure a seamless transition from garrison to expeditionary operations.” 3 Similarly, the ESF will provide a rapidly deployable space control or space force application capabilities that can be tailored to the threat and to specific mission requirements.

General Simon Worden suggests a similar approach in an article he published nearly two years ago in the Aerospace Power Journal. Within that article, Worden writes: “The new systems most consistent with our current doctrine and approach are those capable of doing “sorties” into and from space, vice those that are permanent ‘utilities’ on orbit. If the Air Force is to bear any criticism of its approach to space, it would be due to its slowness to demonstrate and test sortie-type systems for space access and space control.” 4 General Worden highlights many of the technologies necessary to execute a “sortie-type” capability, first among these being a launch-on-demand spaceplane along the lines of the NASA X-33 or X-37. 5 These systems would enable the rapid deployment of satellites into orbit; recovery of satellites; survey, assessment and possible disabling or capture of adversary systems; and the delivery of conventional weapons over intercontinental ranges via the CAV weapons delivery platform. Microsatellites constitute another important technology. Reduced size and weight is the most salient characteristic of the microsatellite, enabling them to deploy in either greater quantities using existing boost systems, or at a reduced cost using smaller and more easily assembled launch systems. Launched en masse, constellations of microsatellites could quickly establish a robust offensive or defensive counterspace presence. Deployed individually or in small numbers on short notice via low cost boosters, so-called microsats could interrogate or disable adversary capabilities or service friendly systems. Microsat-based bodyguards could be designed to orbit in close proximity to high value assets and to interdict attacks by space-based or direct ascent ASATS. 6 To validate the microsat concept, the Air Force and Boeing recently tested a prototype system that demonstrated many of the requisite capabilities to perform these missions. The XSS10, launched as one of two payloads from a Delta II booster, weighed in at 68 kilograms, included on-board processors, avionics, propulsion systems, and high-resolution cameras. 7 These subsystems allowed the XSS-10 to track and image the Delta booster’s second stage from as close as 100 meters distance and send that imagery back to ground stations from a 800 kilometer orbit. 8

**Reforming US space strategy solves innovation, space superiority, and deterrence—plan causes a space war**

**Hyten, Air Force Colonel, 2** (8/20/2002, Col John E. Hyten (BA, Harvard University; MBA, Auburn University) is chief of the Space Control Division, Directorate of Space Operations and Integration, Deputy Chief of Staff/Air and Space Operations, Headquarters United States Air Force. He has served as commander of the 6th Space Operations Squadron, Offutt AFB, Nebraska; mission director of the NORAD/USSPACECOM Command Center, Cheyenne Mountain AFB, Colorado; and in a variety of operations, engineering, and staff positions on Air Force and Army space control and missile defense programs. Colonel Hyten is a distinguished graduate of Squadron Officer School and Air Command and Staff College and attended the University of Illinois as a National Defense Fellow. http://www.airpower.au.af.mil/airchronicles/apj/apj02/fal02/hyten.html A Sea of Peace or a Theater of War?”, nkj)

Every nation, the United States included, has its own unique national-security interests in space. As the world’s most space-dependent nation, the United States must prepare itself to respond to threats to its national interests should negotiations fail. These threats might involve attacking—directly or indirectly—space systems, denying commercial space capabilities, threatening forces/citizens with space weapons, or using international space capabilities in some fashion. Political and economic means could effectively control certain of these threats while others might require military intervention, possibly consisting of nonlethal action (e.g., jamming), lethal action confined to terrestrial targets, or, ultimately, lethal action against targets in space. Most likely, the United States would respond to a purely commercial conflict through nonlethal means, using lethal space weapons only when foreign space systems threatened American lives or property. Each of these threats is significantly different, and the nation must consider each one as it develops a strategy for the twenty-first century.

Recommendations

As a critical element of the future, space will play an essential role in allowing for economic growth and enhancing national security. In order to take full advantage of this future, however, the United States must integrate all of its elements of national power into an effective national strategy. The following recommendations are designed to help develop such a strategy and respond to these challenges.

Reconstitute the National Space Council

The Space Commission’s top recommendations concerning organization and management recognize the critical leadership role of the president in “developing a long term strategy for sustaining the nation’s role as the leading space-faring nation.” It also suggested the creation of two organizational constructs to advise the president on space matters—a Presidential Space Advisory Group to provide independent advice and a Senior Interagency Group within the National Security Council—as well as the establishment of a closer relationship between the secretary of defense and the director for central intelligence.22 Although the secretary and director have certainly developed a much closer relationship regarding national-security space, the two recommended groups have not been implemented.

The original National Space Council (disbanded in 1992) effectively integrated different elements of the executive branch and helped develop coherent strategies. Since the vice president chaired the council, it had the authority it needed to make tough decisions. We should charter a similar body with the power and authority to make critical policy recommendations to the president. It should include senior representatives from all the affected segments of the government, including DOD, the Department of State, the Department of Commerce, the Central Intelligence Agency, the National Aeronautics and Space Administration, and the National Security Council. The space council should first define the nation’s overarching space policy and include a clear vision for the next century. This vision must call for more than a simple commitment to “the exploration and use of outer space by all nations for peaceful purposes.”23

The Space Commission attempted to produce these results by recommending the formation of both an advisory and interagency group, mentioned above. These organizations have yet to receive the charter and visibility necessary to adequately address the complex issues involving space. Combining these efforts into a National Space Council would give them the necessary standing in the government to function successfully.

Develop a New National Space Policy

The current national space policy is out of date. The issues that need attention are so complicated that only a national body within the executive branch, such as a National Space Council, could possibly consolidate the various positions and integrate the policy. The new policy must effectively encompass all the instruments of national power, allowing continued economic expansion and pursuit of vigorous research and exploration, while at the same time protecting US national security.

On paper, the National Science and Technology Council is still “the principal forum” for resolving issues related to national space policy.24 Unfortunately, very few of the critical decisions regarding the future of space are issues of science and technology. Rather, they cross the boundaries of many agencies in government, affecting everything from national security to economic prosperity. Addressing these issues in the context of science and technology gives them the wrong focus.

In March 2001, a Space Policy Coordinating Committee was established under the National Security Council, including senior-level representatives from all federal departments and agencies. Although the committee intended to issue a report in six to nine months, only sporadic activity has occurred.25 We still need an integrated national strategy documented in a new national space policy.

Recently, however, promising efforts appear to be addressing these needs. In May 2002, Dr. Condoleezza Rice, the national security advisor, announced plans to conduct a thorough review of US space policy, stating that “many of the national policies governing our space program have been in place for several years, during which time there have been a number of changes and developments.” She then requested that departments and agencies consider by January 2003 whether existing policies should be revised, consolidated, or eliminated. The Space Policy Coordinating Committee is expected to lead this effort with support from throughout the government.26

The nation must effectively utilize all of its instruments of power as it moves forward in space—an effort that requires new direction. For that reason, a new national space policy is essential. The remaining recommendations address the political, military, and economic aspects of this problem.

Negotiate the Future of Space

Through international agreements, the United States can move forward in a number of areas, most significantly in further defining the international norms for behavior in space—“the rules of the road.” The US position on space has remained consistent for many years. Specifically, the United States does not claim any sovereign right to space, rejects any nation’s claim to such sovereignty, and promotes the availability of space for use by all humanity. At the same time, this country considers the use of space a vital national interest—one that Americans are willing to protect if called upon to do so.

During any negotiations in which it might participate, the United States should be careful to preserve its current strategic advantage, taking no action that would lessen the precision or effectiveness of US military forces. For example, if an enemy denied Global Positioning System (GPS) signals to our precision weapons, should the United States attack to prevent this denial or simply revert to older, less precise weapons—with the resulting increase in collateral (civilian) damage? Preserving this strategic advantage should be a guiding principle for future US initiatives.

Potential enemies (nations, groups, or individuals) need to understand that if they use space systems to target, exploit, or attack US citizens or resources, the United States will respond. In addition to taking political or economic actions, this country could attack ground assets, communication links, or, if necessary, space assets as well. But this does not mean that negotiations leading to either informal understanding or formal agreements cannot prove beneficial to both the United States and the international community. Opportunities exist to further define the commons of space, the legal framework for operating in space, and the conditions that would allow a nation to defend itself.

Achieve Space Superiority

Just as all military campaigns today rely on operational plans to achieve air superiority, so should they include plans to achieve space superiority. The nation’s political and military leaders must recognize that without space superiority, American forces will operate under greater risk in a theater of operations. Space-superiority plans should specify the appropriate application of both nonlethal and lethal force in the particular medium to ensure the availability of space for US and allied forces and to deny it to enemy forces.

Like air or maritime superiority, space superiority does not exist all the time. Rather, military forces must establish it during a specific conflict and maintain it only for the duration of that conflict. Space superiority differs from the air and maritime versions because of the unique physical characteristics involved. In a conflict, one can achieve air and maritime superiority over the limited geographic area (e.g., air superiority over the Persian Gulf or maritime superiority in the Mediterranean Sea). Space presents a more complicated problem. Orbiting space systems have the potential to affect an enormous portion of the globe; therefore, one must evaluate space superiority from the perspective of all of space, not just a limited theater of operations.

The United States does not claim any sovereign right to space, rejects any nation’s claim to such sovereignty, and promotes the availability of space for use by all humanity.

Thus, in its efforts to achieve space superiority, even for the limited duration of some future conflict, the United States must consider the overall impact of its actions on the commons of space. If the United States impinges upon the commons, establishing superiority for the duration of a conflict, part of the exit strategy must include the return of full access to all nations. This requires two approaches: (1) development of a complete spectrum of military options (nonlethal to lethal) and (2) development of doctrine and concepts of operation employing the military option that best achieves the desired effect with minimum impact upon the commons.

Develop Capabilities for Space Control

As history has demonstrated, concentrating on political means without properly preparing to use military force often results in failure. For that reason, the United States should aggressively pursue programs that will give future decision makers options to deny, disrupt, degrade, and, if necessary, destroy space systems that could threaten US interests in the twenty-first century. For the time being, this country can achieve space superiority without deploying weapons in space and without the use of weapons that create permanent effects on the commons of space.

In 1999 Dr. John J. Hamre, then deputy secretary of defense, testified before Congress that DOD initiatives for space control emphasized the temporary denial of space to an enemy rather than the destruction of space systems: “We want our space jamming capabili-ties to be localized and temporary. . . . For example, we would want to jam a global positioning system signal around an air base that might be under attack, but we would not want to shut down the whole system.” He acknowledged, however, that a great deal of research and development remained before we could field such a capability.27 That year, however, the Air Force began pursuing space-control technology efforts and just recently initiated acquisition programs to develop capabilities for countercommunications as well as counter-surveillance and counterreconnaissance with temporary/reversible effects.

One may handle future threats in space by means of a progressive pattern of responses that focus on denial and disruption but do not degrade or destroy. However, if peaceful negotiations fail and military planners cannot develop terrestrial means to ensure space superiority, the only alternative may entail the deployment of some types of space-based weapons. The United States must be ready to respond to this scenario.

The United States needs a full spectrum of capabilities to give decision makers options for resolving conflict at the lowest level possible. Full preparation requires developing and testing the critical systems and technologies necessary to field such capabilities. Failure to do so could leave the United States vulnerable to surprises from other nations. On many occasions, Gen John L. Piotrowski, former commander of United States Space Command, has observed that the United States can’t afford to find itself in second place in terms of space weapons.28

The military also needs to develop more fully the doctrine necessary to operate and use space-control capabilities. Because the concept of space superiority is still relatively new to military planners, significant work still needs to be done on effectively and efficiently achieving it. Understandable concepts and doctrine will allow military leaders to give political leaders sound advice on how to achieve space control across the spectrum of conflict.

We also need to pursue better methods for characterizing potential attacks and defending current space assets—for example, improved situational-awareness capabilities for space to ensure better knowledge of future activities there. We also need better ways of confirming disruptions to or attacks upon satellites. An anomalous event that affects a satellite can have many causes: the harsh space environment, onboard system problems, or hostile action. The correct response depends upon knowing the specific cause. Today’s satellites are relatively incapable of confirming an attack; to maintain our advantage in space control, we must remedy that deficiency.

The United States should use space-based weapons only as a last resort but should not consider such use an unthinkable option. American leaders have long believed this and have used military force when the situation demanded. Certainly, one would prefer to control the future through peaceful agreements that are in the mutual interests of the parties involved. At the same time, the United States must prepare itself to deal with a wide spectrum of potential conflicts in space by developing and testing a number of military capabilities—up to and including space-based weapons, preferably those with temporary/reversible effects.

Fund the Military Space Program In November 1998, Senator Smith noted that in their rhetoric, both the Department of Defense and the Air Force have acknowledged the importance and promise of spacepower. In his 1998 report to Congress, Secretary [of Defense] Cohen stated that “spacepower has become as important to the nation as land, sea, and air power.” In 1995, the Air Force made clear in Global Engagement that: “The medium of space is one which cannot be ceded to our nation’s adversaries. The Air Force must plan to prevail in the use of space.” . . . Compared to the magnitude of the technical challenges involved—and these programs’ potential military value—the investments being made by the Air Force in these areas are paltry.29

This criticism is based on Senator Smith’s perception of Air Force budget decisions on space in the mid-1990s. He and others in Congress believe that the space threat is growing and that DOD should respond accordingly. A study by the Air Force Scientific Advisory Board in 1998 indirectly explained the very reasons why this perception developed and proposed an aggressive increase in Air Force space funding for the coming decade. Interestingly, it also showed the actual Air Force space budget for the previous five years (fig. 1). Note that actual Air Force expenditures on space declined slightly or stayed fairly level during the period—the data to which Senator Smith referred in his criticism of the Air Force’s investment in space. The senator believed that the Air Force had ample opportunity to step up to the future but failed to meet this obligation.

In April 2002, the Congressional Research Service completed an analysis of the nation’s space program, pointing out that tracking DOD’s space budget proved very difficult since it is not reported as a single line item in the budget.30 Interestingly, the Congressional Research Service quotes the trade press as saying that DOD’s budget request for unclassified space activities is $7.8 billion.31 Since the Air Force executes a significant portion of the unclassified space budget (an average of 83 percent, according to the General Accounting Office),32 it appears that the Air Force budget request for 2003 is somewhere around $6.5 billion. A comparison with the Air Force budget included in the Scientific Advisory Board report of 1998 (less than $5 billion) suggests that the Air Force has stepped up to an increased level of support for space, at least to some extent. However, further analysis at the program level provides additional insight.

In early 1999, the Air Force was under fire for deciding to delay for about two years both the high and low portions of the Space-Based Infrared System (SBIRS), the new missile-warning satellite programs. It did so for a number of reasons—technical, programmatic, and funding. Many members of Congress interpreted this action as another instance of the Air Force’s failure to support space. The publication Inside the Air Force reported that key members of Congress were “concerned about the Air Force’s practice of using the SBIRS program . . . to pay its bills.”33 Sen. John Warner (R-Va.), chairman of the Senate Armed Services Committee, called on Defense Secretary William Cohen to cease making any changes to the SBIRS programs until Congress had an opportunity to consider them.34

Less than four years later, the Air Force again finds itself facing criticism about SBIRS—but now from a number of sources. Because of technical and programmatic problems, Congress, in the Defense Appropriations Act of 2002, denied all $94 million requested for procurement of the “high” element of SBIRS but increased funding for research, development, test, and evaluation from the requested $405 million to $445 million. In the 2003 budget, the president requested $815 million for SBIRS-High, an 83 percent increase over the 2002 request.35 For a variety of reasons, ranging from earlier delays to technical and programmatic concerns, the SBIRS program is experiencing serious problems.

In the spring of 2002, due to budget overruns in excess of 25 percent, the SBIRS-High program breached the limits put in place by legislation known as the Nunn-McCurdy Amendment, thereby placing the future of the entire program at risk. In late April, Edward C. “Pete” Aldridge, undersecretary of defense for acquisition, technology, and logistics, recertified the SBIRS-High program as essential for national security and still the best technical approach for meeting the mission. Consequently, however, DOD’s indepen-dent cost estimates judged the Air Force bud-get too low, so the service agreed to fund the program at a much higher level—another significant increase.36

Essentially, a comparison of the Air Force budget over the last few years to the budgets of the mid-1990s reveals a slight increase overall, but most of it went to pay for a few expensive programs that have run into trouble. Even though little has changed in its overall space portfolio in the last decade, the Air Force has stepped up to a leadership role by supporting a number of broken programs essential to national security—such as SBIRS-High. However, if the Air Force is truly to be the executive agent for space and if space really is a vital national interest of the United States, then the Air Force must support space at a level beyond its current programs. Space can help lead the transformation of DOD—but not unless the budget transforms as well.

Senator Smith and others have proposed a separate space force or space corps to adequately support DOD’s space efforts. A strong push for such an organization will continue unless the Air Force, as executive agent in conjunction with the other services and agencies, can meet both the actual and perceived need to be a good steward of military space. The Air Force must take the lead and help transform DOD’s efforts in space, an initiative that will require an ever-increasing commitment—not only in terms of rhetoric but also a greater share of the overall DOD bud-get. It must also reestablish credibility with Congress concerning a number of space programs, including SBIRS-High, and increase its commitments to transformational initiatives (e.g., space-based radar and space control). If the Air Force and DOD fail to meet this challenge, Congress could legislate the creation of a space service well before its time and well before many of the critical policy and doctrine questions have even been addressed.

Structure Laws and Regulations Governing the

Commercial Use of Space

All space industries are global in nature. Navigation, weather, imagery, and communications from space—all of these capabilities were developed in the United States. The US space industry, once a free-world monopoly, now faces increasing competition from around the world. Complicating matters even further, nearly every one of these commercial developments has significant military implications. Commercial navigation, weather, imagery, and communications can help a potential enemy close the gap with the information-dominant United States.

Any US government action that prevents US companies from competing in international markets represents a threat to national security. If those companies are industry leaders and the world comes to them for a particular space service, the country at least maintains some insight and control over this service in times of conflict or crisis.

At the same time, any attempt by US companies to transfer critical technologies overseas also represents a threat to national security. Even if the technology is “only” for communications satellites, that technology still advances the state of the art overseas and allows international companies to provide improved capabilities in competition with those of the United States. In a global economy, however, no nation can isolate itself and remain competitive. The United States must trade overseas with space services; therefore, industry deserves some leeway in the exchange of technical information.

In March 1999, the State Department, in order to comply with the National Defense Authorization Act of 1999, assumed responsibility for satellite-export controls. However, according to John Holum, then the acting undersecretary of state for arms control and international affairs, the department found it extremely difficult to staff this critical function: “Congress mandated new staff . . . but there wasn’t any money provided for that.”37 International customers responded negatively. Indeed, as reported by Space News, “three large satellite operators from Canada, Europe, and Asia said new U.S. technology-transfer regulations will make it difficult, and perhaps impossible, for them to purchase U.S. satellites.”38 The clear implication was that these operators, previously American customers, would go to other international markets to obtain these services. Evidently, these policies have not changed during the Bush administration.

Given these circumstances, the new national space policy should allow US industry to maintain a leadership role in the space marketplace. The United States cannot afford to miss out on international opportunities because of government bureaucracy. An integrated national strategy should make such difficult and controversial issues as remote sensing and imagery resolution easier to resolve. Furthermore, the United States should be able to capture the majority of space commerce in the twenty-first century—a prospect that is good for both business and national security.

Conclusion

The United States has an opportunity to implement a vision that will help shape the world in the twenty-first century. Space is only one of many places where this opportunity presents itself, but it is unique in many ways. Enveloping Earth and reaching to the stars, space has the ability to affect, in some way, the life of every person on this planet. Without a peer competitor, the United States has the opportunity now to take advantage of the unique attributes of space, but the nation has not yet stepped up to the challenge.

Conflict in space is inevitable. No frontier exploited or occupied by humans has ever been free from strife, but the United States has a chance to mold and shape the resolution of such conflict in the future. Opportunities exist through both formal and informal negotiations to define the commons of space and the rules of the road.

At the same time, the United States cannot afford to be caught off guard in the future—and cannot afford to allow another country to deploy a space-based weapon first. To ensure that this doesn’t happen, it must develop a robust program for an entire spectrum of space-control capabilities—deferring the decision to deploy operational, space-based weapons until a clear requirement exists.

If the United States remains strong; if space truly is a vital national interest; if we negotiate openly with the nations of the world; if we allow our industry to exploit space fully and become the unquestioned leader of the information age; and if we develop the means and methods to deal effectively with inevitable conflicts in space, perhaps the new ocean to which President Kennedy referred could remain a “sea of peace.” If, however, the United States continues without an integrated national strategy; if we fail to define a vision of space for the future; if we decide to develop space-control capabilities in a vacuum, apart from the rest of the space community; if we refuse to negotiate with other nations; or if we fail to establish a comprehensive, commercial space policy, then the ocean will undoubtedly become “a new, terrifying theater of war.”

The opportunity exists now but won’t last forever. It requires vision and decisions, national effort and debate on the issues (neither the Air Force nor any other military service can go it alone), understanding of a wide variety of very complex issues, and, most importantly, integrated national strategy. In order to exploit fully the tremendous riches and opportunities in space, the United States must be willing to combine all the instruments of national power in a concerted effort towards the realization of a future vision. If the nation prepares now, this vision has no limits. If we fail to prepare, others will define that vision—and not likely in a way the United States would prefer.

## 1NC ESA CP

**The European Space Agency should**

**- Substantially increase its operational capability for space situational awareness**

**- Pursue joint operations with the U.S. and other international space-faring nations to share debris information and create collective rules of the road for space**

**- Substantially increase efforts to mitigate hazards from space debris.**

**Counterplan solves the case**

**Pannu 11** Aman, Space Security and European Union -Leader, Decision Maker or Enabler?, Last date modified June 1 2011, Aerospace & Defence Consulting Analyst, Frost & Sullivan

Attaining full operational capability (FOC) will give Europe a sound platform to conduct technical exchanges with the likes of the US, aiming at improving the overall performance of the system. Moreover, it is estimated that the European SSA system would reduce the quantifiable estimated loss for European assets due to collision with debris and space weather (circa €332million on a yearly basis on average, not taking into account the collateral damage due to loss of services for critical satellite applications)8. An advanced fully operational SSA system can then be leveraged to enhance data sharing amongst international and national stakeholders enabling better tracking and monitoring of orbital debris, Space objects and any potentially threatening outer Space activities. The potential success of the European SSA system could then be applied to the formulation of broader international regulations and framework for areas such as debris mitigation procedures and spectrum management. Largely due to Europe’s balanced approach to security (without an intensive focus on military), and its collaborative rather than legally binding proposals, it is strategically positioned to align and collaborate with international stakeholders in reaching agreements on collective rules of the road and responsible behaviours within Space. However, before contemplating the success of such a system it is important to address some outstanding issues such as dual nature of end-user requirements for both civil and military, the rules of the road for data acquisition and sharing, categorisation / classification of assets as national or shared, and the potential access of the assets for the European SSA system. Initiatives / Programmes such as the Space Data Acquisition (SDA), which is mainly collecting data and processing it in order to avoid accidents and/or determine responsibilities if they take place, are enabling tools of this system. Frost & Sullivan suggests Europe should approach these issues in a consultative approach with an aim to define activities and expectations for each stakeholder. While undergoing the consultations with the European stakeholders it will be important to consider the impact of emerging rules of the road in relation to its implementation in the broader international framework in the future.

## 1NC Geoengineering CP

**Text: The United States federal government should establish and contribute funding to an international entity, with oversight by the International Council for Science,** **dedicated to implementing projects to add necessary quantities of calcium hydroxide to global oceans and to enhance the reflexivity of stratocumulus clouds through the spraying of marine salt water on stratocumulus clouds.**

**It solves—**

**Ocean quicklime solves ocean acidity and sequesters CO2**

**Wired 8** (7/22, New Geoengineering Scheme Tackles Ocean Acidification, Too, http://blog.wired.com/wiredscience/2008/07/new-geoengineer.html, AG)

A scheme to dump quicklime into the oceans to sequester more carbon in their depths is being revived by a British management consultant with backing from Shell. First proposed back in the '90s by Exxon engineer Haroon Kheshgi (.pdf), the idea takes advantage of a series of simple chemical reactions. Limestone, at high temperatures, breaks down into carbon dioxide and quicklime, in a process that produces greenhouse gas. But dump that quicklime in seawater, and it absorbs roughly twice as much CO2 as was released in the first reaction. The heat required to decompose the limestone will probably come from fossil fuel, generating more CO2, but even so, the sum of the process could be a reduction of the CO2 in the atmosphere. "If we discover we've overshot the amount of CO2 the environment can cope with, the carbon-negative process I'm describing can reduce the amount of carbon dioxide in the atmosphere," said Tim Kruger, founder of Cquestrate.com, which has drawn seed funding from Shell and bills itself as developing an open source solution to climate change. Geoengineering projections have shown that it might be possible to stop the warming of the Earth, but the workable ones have had a big problem: the oceans. While schemes like shooting sulfur dioxide into the stratosphere to deflect some of the sun's energy could cool the Earth, they don't deal directly with the problem of carbon dioxide in the atmosphere. Regardless of the greenhouse effect, CO2 buildup will lead to ocean acidification, which could wipe out coral reefs and lead to large-scale oceanic ecosystem collapse. The quicklime scheme is different. It would go right at the heart of the CO2 buildup problem by removing the gas from the air and sequestering it in the world's oceans. It also makes the oceans more alkaline, directly combating ocean acidification. Of course, the scale of the project would have to be eye-poppingly large. The early calculations, Kruger told Wired.com, indicate that 56 billion cubic feet of limestone would be required to sequester each gigaton of carbon. Humans put out about 5.5 billion tons of carbon annually by burning fossil fuels, so a limestone offset budget could reach 300 billion cubic feet of limestone per year. The U.S. Geological Survey estimates limestone reserves as adequate for every country in the world. This scheme, however, would require a major ramp-up in lime production from the 300 million tons now produced in the world.

**Boosting cloud reflexivity blocks the terminal impacts of warming and gives us time to adapt**

**Ravilious 5** (Kate, The Guardian, Clouds could clear way to saving planet 2/10, http://www.guardian.co.uk/science/2005/feb/10/environment.society, AMiles)

Earth looks as if it is about to overheat. Temperatures are rising, ice sheets are melting and all the evidence points towards a greenhouse future. But what if we could reduce the planet's temperature? Would that give us some time to wean ourselves off fossil fuels and find alternative sources of energy? This is what a group of eminent atmospheric physicists and an engineer are proposing, and they have come up with an idea to halt the Earth's warming. Using nothing more than salt water and wind power, they have designed a device that will increase the reflectivity of some of the Earth's clouds, bouncing more incoming sunlight back into space. They argue that this natural heat shield could be turned on and off at will, giving us a vital extra few decades to sort out the mess we are in. John Latham, an atmospheric physicist based at the National Center for Atmospheric Research in Colorado, first came up with the idea about 15 years ago. "I outlined my idea in Nature, but at that time there wasn't a strong awareness of the global warming problem and so there wasn't a big response," he says. But more recently, the idea of a greenhouse world has become a dinner-party conversation topic and suddenly everyone is interested in ways of preventing the Earth from turning into a sauna. Together with colleagues, Latham has resurrected the idea and this time people are starting to take it seriously. Clouds come in different colours, shapes and sizes and occur at various altitudes; not just any old cloud will do. An increase in the high-level, wispy, cirrus clouds would actually have the opposite of the desired effect: making the Earth warmer as they trap more heat in. It turns out that the low-level, lumpy grey clouds, known as stratocumulus, are the best for the job, bouncing sunlight back into space, off their bright, shiny tops. Which is all very well, but how do you go about making stratocumulus cloud more reflective? Stephen Salter, the innovative Edinburgh University engineer, (known best for his invention of Salter's duck - the 300-tonne floating canister designed to drive a generator from the motion of bobbing up and down on waves) thinks he has the key. "We need to atomise seawater and throw tiny droplets into the air," he says. The idea is that this fine mist of sea-spray evaporates, leaving tiny particles of sea salt that get sucked up into marine stratocumulus clouds on rising currents of air. These little particles act as centres for extra droplets to form. "Clouds become more reflective if you increase the number of droplets in them," explains Latham. A bonus of filling the clouds with smaller droplets is that they tend to last for longer, reflecting more sunlight back into space, before they disperse. To produce this fine mist of sea spray artificially, Salter envisages thousands of unmanned yachts zigzagging across the sea, carrying equipment to make very choppy waves, known as Faraday waves. A high-frequency ultrasonic generator would spin seawater around inside a grooved drum, producing tiny waves that are thinner than a human hair. "It looks a bit like a cup of coffee on a rattling train, but it would be nearly vertical," says Salter. Once the waves are steep enough, drops of water are thrown up from their crests. "All we need to do is try and get these fine droplets into the first few metres of air, and meteorology will do the rest," says Latham. To remain truly environmentally friendly, the yachts would be driven by wind acting on the spinning drum, like a sail. Movement of the boat through the water would drive propellers acting as turbines, to produce the electrical power for spinning the drums and driving the ultrasonics. Meanwhile, satellites would direct their movements, placing the yachts in the areas of ocean where the most effective stratocumulus clouds could be modified. But would it really work? If calculations and computer models are to be believed, then yes, the physics of this idea is sound. Working together with Tom Choularton, of Manchester University, and Mike Smith, of Leeds University, Latham has done extensive calculations to make sure he has got his sums right. In addition, they have tested the idea using the Meteorological Office's Global Climate Model and shown that increasing the droplet numbers in marine stratocumulus clouds could have a significant effect.

## 1NC Near Space CP – ORS

**Text: The United States federal government should substantially decrease dependence on space assets in favor of near-space assets, starting with mission critical capabilities including but not limited to early warning satellites. The United States federal government should cancel Operationally Responsive Space.**

**That solves vulnerability and prevents an arms race**

**Weston, Air Force Major, 9** (Scott A., 3/1/2009, Air and Space Power Journal, “Examining Space Warfare,” http://www.airpower.maxwell.af.mil/airchronicles/apj/apj09/spr09/weston.html, mat)

The main argument for US weaponization of space turns on the inherent vulnerability of space assets and the fundamental need for them to ensure national security and prevent another Pearl Harbor. Space-based weapons and ASAT systems seem to reduce vulnerability either through active defense or deterrence (though that assertion becomes questionable if one takes into account the likely weapons race that would result). They do nothing, however, to address the dependence of military forces upon such systems and create a requirement for a permanent “global fortress” in space. But recently, near-space technologies such as high-altitude unmanned aerial vehicles have shown potential for reducing military dependence upon space-based assets by performing command and control, communication, and ISR missions similar to those conducted by satellites.42 Sensible policy making requires debating the implications of trying to directly defend space assets versus developing alternative military capabilities that would reduce our military reliance upon space and thus diminish the attractiveness of space assets as targets for our adversaries. Though long-term investments, both space-based defenses and near-space vehicles create very different potentials for US space policy. Uncontested control of the high ground of space seems tempting, especially for a superpower. It is unrealistic to base US policy on this school of thought, however, due to the ability of other spacefaring states to counter US interests by developing their own space weapons and beginning a new arms race—or simply bypassing deployed defenses. 43 Though stable, current US space policy cannot last without a strong diplomatic structure. The rise of another nation to challenge the United States in space will surely alter the status quo in a manner unacceptable to us. Bruce DeBlois articulates a better choice: “The decision to weaponize space does not lie within the military (seeking short-term military advantage in support of national security) but at the higher level of national policy (seeking long-term national security, economic well-being, and world­wide legitimacy of US constitutional values).”44 This view uses the current US ability to lead negotiations from a position of authority and power to ensure the creation of rules of the road and, eventually, treaties that will protect US space interests in the future. Combined with existing passive defenses and the development of near-space defenses for addressing security vulnerabilities and requirements, a “space sanctuary” provides economic, political, and even security advantages.

## 1NC Near Space CP – SPS

**CP text depends on plan text.**

**Near space is cheaper and solves the case**

**Agietti, prof of aerospace design, 8** (Guglielmo S., Environment and Development, “High Altitude Electrical Power Generation,” http://www.wseas.us/e-library/transactions/environment/2008/28-627.pdf, mat)

Another possibility would be to collect solar power in space, as most satellites do in order to power their subsystems. Here a sun pointing surface would receive a constant power of about 1367 W/m 2 that would allow a production of about 12000 kWh per year for the same PV system mentioned above (over an order of magnitude greater than what can be achieved on the ground in the UK). This possibility was considered in the 1970s by Glaser [1], who proposed the large scale collection of solar power using a large satellite platform that would then transmit the energy to the ground using microwave radiation. However, the development of his Satellite Solar Power (SSP) concept was stopped by a mixture of safety concerns (regarding the transmission of energy from the satellite platform to the ground using a microwave beam), as well as technical issues (such as the losses in the energy conversions and transmission), and the very high cost that always denied the economical feasibility of the system. As an intermediate solution between SSP and Ground Based PV devices we propose the possibility to collect the solar energy using a high altitude aerostatic platform [2], [3], which would support PV devices above the clouds and bring energy to the ground via its mooring line. This approach allows most of the issues related to the weather condition to be overcome, as the platform will be above the clouds except in very extreme weather situations, and it would bring a relevant advantage in the production of energy. At the same time, as the platform is above the densest part of the troposphere, the sun’s radiation will travel through considerably less air mass than if it was on the ground (particularly during the early morning and evening) and this will further improve the energy output. The choice of transmitting the energy produced to the ground using the mooring line of the aerostatic platform allows to solve most of the problems concerning the safety issues and to limit the electrical losses. The cost for this “augmentation” is mainly constituted by the cost of the aerostatic platform and tether system. The study that we carried out (see ref [3]) considers the economical advantage that this technology could bring, showing that including all these factors it could be possible to make the energy available on the ground at a lower cost than that can be achieved by solar panels based on the ground in northern European countries.

## 1NC Near Space CP – Environmental Monitoring

**CP text depends on plan text.**

**Counterplan solves science monitoring**

**Pankine, PhD in planetary science, et al 9** (8/2011, Alexey Pankine, Zhanqinq Li, prof of atmospheric science, David Parsons, Michael Purrucker, Elliot Weinstock, Warren Wiscombe, Kerry Nock, American Meteorological Society, “Stratospheric Satellites for Earth Observation,” http://denali.gsfc.nasa.gov/research/purucker/pankine\_stratsats\_bams\_2009.pdf, mat)

SUMMARY. At present, no investment is being made in developing very long-life stratospheric balloon technology primarily for Earth science applications. The current investments are focused on multiton astrophysical payloads that look upward into space and that usually care little about their geographic location except when they desire a view of either the northern or southern celestial sky. Earth science balloon technology requires a different development path because trajectory guidance is essential and, because payloads are lighter, balloons can be made much smaller. Nevertheless, most technology could be adapted from the astrophysical balloon technology path and thus comes heavily leveraged. The existing balloon launch facilities in Texas, New Mexico, Alaska, Sweden, Australia, and Antarctica could also be used. If the necessary steps to realize the promise of very long-life stratospheric platforms for Earth science are taken, constellations of StratoSats could work in collaboration with other elements of the Earth observation “sensor web” like UAVs and satellites to transform our understanding of the Earth and its atmosphere. The cost of a constellation of 100 StratoSats is less than a cost of a single satellite because they are inherently much less costly and because, unlike with satellites, economies of scale further drive down the price. In addition, StratoSats could allow a more rapid and flexible iteration cycle in instrumentation and observing strategy than is possible with satellites. Once their potential in this regard begins to be realized, we expect that students and professors will find them to be very attractive platforms for their own measurements as well as for educational purposes. Indeed, in the astrophysical community the balloon program is a training ground for students who eventually go on to propose and win satellite investigations. StratoSats could make important contributions in four scientific areas today. First, they could validate climatically crucial Earth radiation energy budget retrievals made using satellites and help to eliminate the current diurnal and sun-angle biases; constellations could help reveal the dynamic quality of radiative fluxes in short-term events such as dust outbreaks. Second, StratoSats could study stratospheric and upper-tropospheric chemistry, especially water vapor, which exerts a profound feedback effect on climate, and measure trace gas profiles for unprecedented durations and for regions above 20 km rarely sampled in situ. Third, they could map the Earth’s crustal magnetic field at never-before-achieved spatial scales, producing a revolutionary map of the magnetic Earth that could lead to new understandings of the Earth’s crust. Finally, they could patrol the tropical and midlatitude atmosphere to provide measurements that could improve the predictions of the paths and intensities of storms and, by dropping dropsondes on command, provide adaptive measurements to improve the predictability of weather. In summary, the development of StratoSat constellations will enable new science and new observational techniques that will help us to advance Earth science in many ways that can be foreseen today, and, as is common with new platforms, other ways that are as yet only dimly perceived are certain to emerge.

## 1NC Russia CP

**CP text depends on plan text.**

**Russia’s space program is excellent—it’s comparable to the US**

**HARVEY 2007** (Brian, author of several books about space, The rebirth of the Russian space program: 50 years after Sputnik, new frontiers, p. 316)

Despite all that, the Russian space program clawed its way back. In 2000 Russia regained its place as the top space-faring nation in numbers of rockets launched each year. When the American space shuttle Columbia burned up in 2003, it was Russia that kept the International Space Station going, smoothly and without fuss. Against the odds, Russia managed to: • keep the Mir space station in operation until its safe de-orbiting in 2001; • build the core modules of the International Space Station, Zarya and Zvezda, as well as supply a docking module, Pirs; • send a regular supply of Soyuz and Progress missions up to the ISS, including new versions of both: the Soyuz TMA and Progress Ml models; • maintain a military space program; • sustain a space applications program. The Russian space program demonstrated a high level of adaptability to the new, difficult and uncertain economic conditions. This was most clearly demonstrated by: • the establishment of a national space agency, the RKA, now Roscosmos; • the turning around of the program from the most self-sufficient national program to the most globally competitive in the world; • the attraction of significant foreign investment to sustain the manned and unmanned program; • 87 space-based companies which entered joint ventures with American and European companies to sustain and develop their projects; • the opening of new cosmodromes (Svobodny and Dombarovska), the development of new launching systems (Barents Sea) and a launch base in French Guyana; • the adaptation of missiles to serve as launchers: Rockot, Start, Dnepr and Shtil; • the introduction of new upper stages: Ikar, Fregat, Briz KM and Briz M. The Russian space program began to show the promise of new life: • fresh groups of cosmonauts were recruited; • the production line of the Soyuz and Proton rockets was increased; • the Soyuz 2 series was introduced; • progress was made in the preparation of a new family of rockets, the Angara. It is possible that 1997 marked the low point of the extreme financial and organizational pressure inflicted on the Russian space program. Ten years later, Russia was in a better position to develop future projects. In 2005 the government approved a new federal space plan. Here we review its key elements, for they mark out the intended future path of Russian space exploration.

## 1NC “We” PIC

**CP text depends on plan text.**

**The use of “we” kills agency and subjugates dissidents to a tyrannical state- it kills social movements**

**Kerr 3** (Roger, Executive Director of the New Zealand Business Roundtable, “The ‘We’ Word: And the Tyranny of the Majority,” http://www.freerepublic.com/focus/f-news/1049792/posts, mat)

False collectives-what Americans call 'weasel words'-poison the language we use to talk about public affairs by cobbling together spurious majorities, writes Roger Kerr 2003 marked the centenary of George Orwell's birth. Orwell was one of the most profound writers of the 20th century. His two satires on Soviet totalitarianism-Animal Farm and Nineteen Eighty Four-were antidotes to the attractions of ideology and, in the case of Nineteen Eighty Four, to attempts to use language as a form of thought control. We are still familiar with the two features of totalitarian thinking that Orwell exposed, namely, 'doublethink' and 'newspeak'. Doublethink refers to the capacity to subscribe to two contradictory beliefs at the same time, as in slogans like 'war is peace', 'freedom is slavery', and so on; newspeak was the regime's official language which, by controlling and limiting speech to an officially approved and crudely simplified vocabulary, would make dissenting thoughts literally inconceivable. Another thinker who was alert to the political implications of language was Friedrich Hayek. In his last book, The Fatal Conceit, Hayek devoted a chapter, titled 'Our Poisoned Language', to the collectivist bias in the way we talk about public affairs. This is part of Hayek's wider argument that socialism is a throwback to primitive tribalism, in which the tribe could survive only by acting as one. The central word here is 'society', which of course refers to a group of people but which is often used, tacitly and even unconsciously, to refer to more than that-namely, to a group that has an overriding, collective goal and therefore has to make central decisions, even though societies can and do exist without having collective goals and without central decision-making. In modern speech, Hayek writes, the adjective 'social' is applied indiscriminately to a huge number of nouns in a way that undermines their original meanings and recruits them into a collectivist cause. Take the idea of justice. Let's say that this means the fair and impartial application of legal, moral and perhaps customary rules. But precede it with the word 'social' and everything changes. Social justice may require redistributing property and treating people unequally. In this way the word 'social' empties the nouns it is applied to of their meaning. Hayek goes on: . . . it has in fact become the most harmful instance of what, after Shakespeare's 'I can suck melancholy out of a song, as a weasel sucks eggs' (As You Like It, II, 5), some Americans call a 'weasel word'. As a weasel is alleged to be able to empty an egg without leaving a visible sign, so can these words deprive of content any term to which they are prefixed while seemingly leaving them untouched. A weasel word is used to draw the teeth from a concept one is obliged to employ, but from which one wishes to eliminate all implications that challenge one's ideological premises.1 Another term that has been almost completely emptied of meaning by being called social is 'right'. A right properly means a sphere of freedom that is protected by law, or a just claim. But nowadays, by being prefixed with 'social' or related words like 'welfare', a right is taken to mean a claim to redistribution that the law enforces. The right to work, for example, by being made a 'social' right, has ceased to mean that the state should not interfere in voluntary labour contracts, and has become a demand that the government guarantees a job to everyone who wants one. This, taken to its logical conclusion, could mean the central direction of labour and severe restrictions on the freedom to enter into labour contracts. What we have here is a form of linguistic piracy, in which the favourable connotations of a word are hijacked and used for purposes that are often the opposite of those suggested by its original sense. No-one wants to be opposed to rights, but plenty of people are opposed to the limits on government that rights imply. The word 'social' conjures those limits away. A related example of this sort of chicanery is the idea of 'fair' trade. Advanced as an alternative to free trade, fair trade simply means protection. Yet free trade is perfectly fair in the sense that it takes place under the rule of law and on a level playing field. But the very term 'fair trade' subtly implies that free trade is unfair, and who wants to be seen to support unfairness? So as the term gains currency, the burden of proof is quietly passed from the advocates of protection to the advocates of free trade. Hayek's analysis of the collectivist bias of language and especially of the word 'society' can be extended to a range of related and common words. We all know that the communists shamelessly used the term 'the people', in phrases like 'people's republic', to pretend that their regimes were genuine and legitimate expressions of the collective will of their subjects. Yet in the West we often use such terms in similarly distorting, if more subtle, ways. In the public meetings that precede planning decisions, opponents of a proposal to build a supermarket, or a road, or whatever in a locality typically say things like 'the government should listen to the people'. But supporters of the proposals may well say the same thing. When public opinion is divided, each side likes to enlist the notional support of 'the people' to legitimise its stance. What the advocates really mean, of course, is that the government should listen to 'me'. Again, take the term 'public'. 'Public spending', for example, should literally mean spending undertaken by members of the public. But it has come to mean government spending, regardless of whether the public wants it or approves of it: all the public has to do with it is to pay for it. A similar distortion appears with the terms 'public sector' and its counterpart, 'private sector'. Some people genuinely believe that the 'public sector' is so called because it embodies the interests of the people as a whole, in contrast to the 'private sector', which embodies the special interests of private businesses. 'Public' is a term that nowadays subtly shifts us from talking about the people as a whole to talking about the government and its agents and employees, and into assuming that anything done by arms of the government is by definition in the common interest. Another such term, much loved by politicians, is 'community'. A community, strictly speaking, is a group of people with common interests and experiences, and probably some face-to-face contact. A community so defined has to be rather small: a village, say, or a profession, like 'the medical community'. But sometimes the word is stretched to cover what we should call, perhaps, 'the nation', or 'the general public' if we could trust ourselves to use that term properly. The members of a nation are mostly anonymous and unknown to one another, and have diverse opinions, preferences and experiences. Although they share an historical national identity and a common legal identity as citizens, to describe such a group as a 'community' is to pretend to a higher level of collective sympathies, interests and goals than in fact exists. It tends therefore to expand the agenda of collective decision-making beyond what is necessary, and encourages acquiescence in the aggrandisement of the state. Of all such terms, 'we' is the most subtle and troublesome. It is a term that we-so to speak-cannot dispense with, and so we risk being trapped into connotations that we don't intend or are unaware of. 'We' can be used in an individualistic sense: 'we' taken as individuals, who can act and make decisions on our own behalf. But it can also be used in a collective sense, meaning that on each issue 'we' have to make a single decision that applies to all of us. For example, after a natural catastrophe, someone might say, 'we should all help the victims'. The words by themselves don't expose two crucial distinctions: whether assistance should be by each of us as individuals or organised on a collective basis; and, if collective, whether it should be voluntary (through donations) or involuntary (through government action financed out of taxes). But my deeper point is that this ambiguity of 'we' can lead us into collective thinking and coercive action where it isn't necessary. Political rhetoric is full of phrases like 'we as a nation must decide whether we want a national airline/film industry/manufacturing sector/whatever'. This assumes that 'we' have to make a single, collective decision as voters, whereas in reality 'we' as individuals are making that decision every day. If consumers prefer a domestically manufactured product to an imported one, a domestic manufacturing industry or firm will be there to meet the demand; if they prefer the imported product it won't. The demand that 'we as a nation must decide' is to call on people to decide through the political system things that they can readily resolve as individual consumers. The 'we' word may also be used by members of groups that are smaller than, and contained within, the wider society. In a system that encourages lobbying by special interests and institutionalises 'disadvantaged' minorities, spokespersons of those groups may be tempted into a false collectivism. The media encourage this by commonly treating any member of a disadvantaged minority as automatically representative of that sub-set, as if all its members were unanimous about every issue. Underlying the individualist and collectivist senses of 'we' is the distinction between what David Green calls 'corporate association' and 'civil association': A 'corporate association' is composed of persons united in pursuit of a common interest or objective . . . In the pure form of a nation as a corporate association, there is but one overriding national objective. In a nation of 'civil associates', people are united not because they share a concrete goal, or are engaged together in a substantive task, but because they acknowledge the authority of the rules under which they live . . . The task of government under a corporate association is to manage the pursuit of the common goal and to direct individuals as appropriate . . . The task of the state under a civil association is to maintain and enforce the laws, and to supply services such as defence, which must be financed from taxation. The role of government is limited and subject to the law.2 As Green notes, if we take society to be a civil association rather than a corporate association, the role of what 'we' collectively have to decide is limited to genuine public goods like law-enforcement and defence-since these are goods that we individually can't otherwise produce in the desired amounts-plus some form of collectively provided social safety net. There are not many genuine public goods, and the number is shrinking with advancing technology. But the constant use of the collective 'we' in political debate tends to push out the agenda of government into areas where we as individuals are capable of looking after ourselves. Indeed, most of the time the 'we' word is really a disguise for the 'it' word: the government. Those who argue that 'we as a nation' must decide whether we want a manufacturing industry are really saying that, since 'we' as individual consumers have shown that we prefer imports, the government should override those preferences and protect domestic manufacturers from import competition. The scope for special interests to advance under the cover of the 'we' word is obvious. It is true that sometimes such government intervention does appear to command a degree of popular support, and it is a huge advantage to a special interest seeking government favours when this is the case. Indeed, not only special interests but governments themselves are constantly in the business of testing 'public opinion' with polls, consultations, focus groups, and so on, trying to come up with putative majorities to legitimise their proposals instead of seriously demonstrating that they serve genuine collective interests. But the further away 'we' collectively are taken from 'us' individually, the more contrived, artificial and fragile is the 'majority' that is formed in our name. For example, advocates of bigger government like to cite opinion polls that appear to show that a majority approves of higher taxes to finance better health, education or welfare benefits. Four major objections can be raised against this. First, the question itself assumes that it is axiomatic that higher taxes actually result in better services. They may well not, but the opinion pollsters don't normally accommodate this possibility. Second, the polls typically present a bogus either-or choice between raising taxes and leaving them unchanged. They exclude the entirely feasible options of charging for some services and lowering taxes to allow more individuals to make private arrangements. So the majority for higher taxes is largely contrived. Third, some of the many beneficiaries may expect others to pay the higher taxes: 'we' doesn't include 'me', as it were. Finally, we tend in the privacy of the polling booth to vote against higher taxes, whatever we think we should say to opinion pollsters. Several Western political parties have lost elections in recent years after promising to increase taxes, or after increasing them when they had promised not to. It is a major problem for opinion polls that respondents may not reveal their true preferences but express preferences that are socially fashionable. Again, the collective 'we's that are constantly cobbled together in support of some proposal or other are highly dependent on the phrasing of whatever it is that is being put to us. The question 'Should we protect our manufacturers from import competition?' may be supported by a majority. But if the question were rephrased 'Should the government raise the prices of manufactured goods by levying a tax on manufactured imports?', the majority would be smaller or even non-existent. If the 'we's that opinion polls record are so precarious, it's not surprising that they can be contradictory as well. A good example comes from the United States in the mid-1990s. In 1994, a new Republican-dominated Congress thought it had a clear mandate to move towards a balanced budget. It duly put up proposals to reduce the growth rate of some welfare entitlement programmes. But no sooner had the proposals been passed than President Clinton vetoed them, invoking the support of a new majority opposing them. Which did US citizens want? A balanced budget or guaranteed entitlement levels? They wanted both. The 'will of the people' may be systematically ambiguous on the decisions that governments make on a daily basis. The truth is that few consequences for the respondent hang on the answers given to an opinion pollster, and there is little incentive to make a considered judgment. This is largely true of voting as well, since a single vote hardly ever determines the outcome of an election. But there is some evidence that people take voting relatively seriously. Devotees of the 'we' word might therefore be challenged to consider making more use of the system of citizens initiated referenda. They are unlikely to do so because, unlike with opinion polls, the results of a referendum cannot be easily manipulated. But the challenge could at least inject a little linguistic hygiene into the Towers of Babel that politicians, lobbyists, intellectuals and journalists have constructed in modern democracies. This is not to suggest that the collective 'we' must be confined to the limited range of collective or public goods that a government has to fund or produce in a civil association. Although the members of a society like Australia or New Zealand are for the most part unknown to one another, we have common bonds and share a common destiny. A civil association does not conscript its members into overriding collective purposes, but nor is it merely a collection of atomised individuals who have nothing to do with one another. We have our voluntary collective activities, like sports, churches, associations of all sorts, and our annual timetable of festivals and rituals. When referring to our common life, we can use the 'we' word without ambiguity or sleight of hand. The problem arises when our common life is made the basis for what are usually spurious majorities for expanding the scope of government beyond its necessary limits. Such majorities typically reflect only the shifting and temporary coalitions that our political system produces, and government that is beholden to them ceases to be the agent of the society and becomes an instrument of coercion. So beware the 'we' word in politics, since, despite its apparently communitarian connotations, it so often portends a weakening rather than a strengthening of social cohesion. A key feature of constitutional democracy is the protection of minorities and the rights of dissenting, law-abiding individuals. Exercising through politics the so-called 'tyranny of the majority', and trampling on individual rights, are recipes for social discord at best and a slide into an Orwellian world at worst.