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STRATEGIC CHOICES: EXAMINING THE UNITED STATES MILITARY RESPONSE TO THE CHINESE ANTI-SATELLITE TEST

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The Chinese ASAT test resulted in a kill to a derelict satellite and the production of a debris field that now threatens other satellites in low earth orbit. More importantly, this event crossed a potentially dangerous threshold in the “weaponization” of space. Space assets are now perceived as more vulnerable than ever to direct attack or from accidental damage from orbital debris. This article focuses on the U.S. military response to the Chinese ASAT test. The U.S. military has three basic perspectives from which to react to this test. First, it can prepare to act offensively to eliminate threats. Secondly, it can choose to develop and field defensive systems. Finally, it can engage in space security cooperation to protect U.S. and international space-based assets and defuse an arms race. The direction the U.S. military takes will ultimately be a function of larger U.S. government policy and national security decisions. On the eve of the election of a new U.S. administration, we find ourselves at a strategic crossroads concerning the protection of our interests in space. The road we take may have far-reaching implications and consequences. It is in our best national security interests to tread carefully and get it right.

In the immediate aftermath of the People’s Republic of China (PRC) January 2007 direct-ascent kinetic kill of its own weather satellite, United States (U.S.) technical experts and foreign policy analysts worked diligently to determine the long-term technical and political impacts of the event, decipher China’s intentions, and devise various approaches to maximize U.S. national security interests in space. A multitude of works has been produced in that regard. Some of the more hard-line views take the position that the

The views expressed in this article are the author’s alone and do not represent the official position of the Department of the Navy, the Department of Defense, or the U.S. government.

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Chinese test was merely a predictable culmination of a well laid out blueprint for space domination.¹ Others take a broader perspective, stating, “Discussions about space security are cluttered with commentators and advocates fretting too much about the potential implications of ‘militarizing’ and ‘weaponizing’ space. But it is too late: space is already militarized and weaponized.”² The implication there seems to be that restraint on part of the U.S. is unnecessary. It is also suggested that “the key messages are that the United States could not expect to dominate space alone and that intervention on behalf of Taiwan would be increasingly risky and costly.”³

As more becomes quietly known from the Chinese, it appears increasingly likely that the test was a demonstration of a capability by the People’s Liberation Army (PLA) to show it would not be shut out of space by the U.S., and as a deterrent against U.S. action in support of Taiwan, as well as a potential warfighting tool should things go bad there. Rather than speculate further on Chinese motivations, it is the purpose of this article to review the U.S. military and government responses to the test toward gaining perspective on what U.S. actions might be anticipated in the future.

The Event and Its Consequences

In a test designed to evaluate their anti-satellite (ASAT) missile capability, at 1728 EST on 11 January 2007, the PLA of the PRC successfully destroyed one of their defunct weather satellites, the Feng Yun 1C. This 750-kilogram (kg) satellite was in a polar, sun-synchronous, low-Earth orbit (LEO) at an altitude of approximately 860 km. The method used to destroy the satellite was with a direct-ascent, kinetic kill vehicle. The vehicle was boosted into orbit by a four-stage, solid-fuel launch vehicle based on China’s KT-2, launched from a transporter erector launcher (TEL) at the Songlin test facility near Xichang in Sichuan province.⁴ The vehicle slammed into the Feng Yun 1C satellite instantly obliterating it and disintegrating it into an estimated 35,000 individual orbital debris particles of one centimeter (cm) or larger in size.⁵ The debris field quickly dispersed along the satellite’s original orbital path, with all of these individual particles traveling in a path perpendicular to the paths of many other spacecraft, both manned and unmanned in equatorial LEO.

Most notably, Space Shuttle missions and the International Space Station (ISS) are potentially put at risk, especially in the long-term, from the debris created by this test. According to the U.S. Air Force Space Command, over 700 spacecraft in LEO are now at increased risk of collision with debris from the resulting debris cloud.⁶ The debris cloud will continue to spread and stratify in altitude over time, increasing the probability of collisions at all LEO altitudes. According to Dr. T. S. Kelso of the Center for Space Standards and Innovation, “85% of that debris cloud will be in orbit in 100 years. It shows how badly they messed things up with one event.”⁷

The U.S. has already had to maneuver at least one satellite in order to avoid a potential collision with debris from Feng Yun 1C. In late June, flight controllers at NASA’s Goddard Space Flight Center boosted the Terra environmental spacecraft 1.3 kilometers (km) in altitude after a week of tracking and analysis of a 40 cm piece of debris from Feng Yun 1C showed a 7% chance of collision with Terra. The maneuver of Terra reportedly reduced the chance of collision with that one piece of known debris to zero.⁸

The current state of U.S. space surveillance capability makes a bad situation even worse. While the U.S. has the most robust space surveillance system, its capabilities are, nevertheless, limited. Objects in space are routinely tracked from Earth, for example, only if they are 10 cm or larger. To put that in perspective, the U.S. Air Force is currently tracking about 1,500 10 cm or larger particles from Feng-Yun 1C. That leaves an estimated number of over 35,000 1 to 10 cm particles that, while potentially capable of being detected, are not being tracked. These debris particles have the potential to cause catastrophic damage to orbiting spacecraft. Theresa Hitchens, Director of the Center for Defense Information, warns that “this incident highlights the irresponsible nature of the Chinese test, as well as more generally the threat from any future testing or use of debris-creating ASATs. And, it makes it all the more urgent that responsible spacefaring nations get together to ban such testing and use.”⁹

Aside from the debris concern, is the very nature of an ASAT missile capability. China’s official statement issued by a Foreign Ministry representative on 23 January 2007, 12 days after the test and after considerable negative international reaction, said that the ASAT test “was not directed at any country and does not constitute

a threat to any country.”¹⁰ Furthermore, he reiterated China’s opposition to the weaponization of space or a space arms race.¹¹ In the aftermath of the unprecedented amount of hazardous debris created by the test, those words ring hollow to U.S. military leaders. Equally worrisome, China’s possession of this capability and further development of it raises obvious questions regarding its long-term intent for its use. Intent is the key issue. Determinations regarding capabilities are relatively easy by technical analyses, whereas determinations of intent are far more subjective. While some analysts cite the 2006 “blinding” of a U.S. satellite by the Chinese as further evidence of nefarious Chinese intent in space,¹² General James Cartwright, then head of U.S. Strategic Command (USSTRATCOM), said in reference to that “dazzling” of the U.S. satellite—the former usually referencing permanent damage while the latter indicates a temporary action—that there were no clear indications that China intentionally disrupted U.S. satellite capabilities.¹³ With the intent of the Chinese ASAT test also ambiguous, it is understandably of considerable concern to the U.S. military and defense establishment, and the primary focus of this article.

Two previous direct-ascent tests did not result in an intercept. Notably, the U.S. was aware of these, but remained silent until after the successful test.¹⁴ Speculation theories as to why the U.S. did not try to stop the tests through a diplomatic demarche include deciding it was more valuable to gather intelligence on Chinese capabilities, wanting to allow the Chinese to bring international condemnation on themselves through the test, and concern about looking foolish if a public demarche was staged by the U.S. with no impact on Chinese decision making.¹⁵ Most likely, all those factors were considered by the Administration. Additionally, the Chinese test has done more to spur public and political support for U.S. space control programs—supported by the military and the Air Force in particular—than the U.S. military could have ever done on its own. Hence, advocates for space weaponization could have perceived allowing the Chinese ASAT tests to proceed unfettered as in the best interests of their cause in the long run.

Post-Test Reactions

China’s 12-day delay in issuing an official statement following the destruction of the satellite produced wide speculation regarding the

calculus behind the Chinese decision to test their ASAT capability. Nevertheless, international reaction was swift and concerned. Among the countries issuing formal protests, inquiries, and statements were the United Kingdom, Japan, India, Russia, Australia, Canada, and Taiwan. All countries essentially protested the test as irresponsible and contrary to China's declared policy of peaceful use of space. However, at least one country took the opportunity to justify its own intent to assess the need for and pursue as necessary its own ASAT capabilities. Most notably, India declared its intent to explore such development, thereby raising the risks of an eventual space arms race with Pakistan, Indonesia, and other Asian nations.¹⁶ Due to the smaller number of space assets owned by individual countries in this region and their subsequent dependence on single assets, negating a single asset can have even more impact, and potentially escalate hair-trigger situations even faster, than for countries with redundant capabilities.

The Bush administration was quick to express concern over the ASAT test. On 18 January 2007, National Security Council representative, Gordon Johndroe, stated, "the U.S. believes China's development and testing of such weapons is inconsistent with the spirit and cooperation that both countries aspire to in the civil space area. We and other countries have expressed our concern regarding this action to the Chinese."¹⁷ Expressing the official U.S. government position on the test in early February, a U.S. State Department official said, "we still await a complete explanation from China as to how this ASAT test squares with its professed desire to seek only peaceful uses of space."¹⁸ Of note, the U.S. has, so far, tread carefully and has not specifically renounced the use of ASAT weapons. Doing so could potentially conflict with the current National Space Policy issued in 2006 and with U.S. military doctrine for Offensive Counterspace operations. The U.S. finds itself on the horns of a tough policy dilemma, unable to claim the moral high ground in this current political and military face-off due to its own space policies and professed military doctrine. While the U.S. has not tested an ASAT since 1985, and it has been proactive about raising awareness concerning debris and debris mitigation, adamant insistence on maintaining the option for space weapons development, and moving in that direction, would make criticism of others for doing the same a "do as we say and not as we do" directive.

The U.S. Military and Department of Defense Response

In one successful ASAT test, the Chinese essentially put the U.S. military—particularly the U.S. Air Force—on notice that “controlling” space might be a lot harder than generally presumed and purported in U.S. policy and military doctrine, especially if totally reliant on technology to do so. The military reaction has been predictably both alarmist and cautious, and in line with stated defense policies and doctrines. A brief review of those policies and doctrines is therefore in order.

There are four military space missions defined in the U.S.: (1) space support (e.g., launch and satellite maintenance); (2) force enhancement capabilities to increase the advantages of the warfighter, such as precision guided munitions and Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR); (3) space control (e.g., the ability to use space when needed and deny the use of space to the adversary); and (4) force application (e.g., offensive counterspace such as space weapons).¹⁹ The latter two are viewed as essential to maintain U.S. space superiority, requisite to protect space assets essential to both force enhancement and a robust economy and population. Other countries, however, question whether the U.S. actually is satisfied with space superiority, being first among many, or actually seeks space dominance, whereby other countries could be shut out of the space arena, which they too view as critical to the same national interests as the U.S.

Space Superiority is defined in U.S. Air Force Doctrine Document 2-2.1, *Counterspace Operations* of 2 August 2004 as, “the degree of dominance in space of one force over another that permits the conduct of operations by the former and its related land, sea, air, space, and special operations forces at a given time and place without prohibitive interference by the opposing force.”²⁰ While the *Counterspace Operations* doctrine document says the U.S. seeks “space superiority,” an advantage over other countries by some potentially minimum amount, the language makes it not unreasonable to conclude that “space dominance,” the unchallengeable ability to control the space environment, is the ultimate U.S. goal.

The lineage of this position comes from documents such as *Vision for 2020*, published in 1997 by U.S. Space Command, which stated, “The emerging synergy of space superiority with land, sea,

and air superiority, will lead to Full Spectrum Dominance.” The themes of that document were later echoed in the 2000 *Report of the Commission to Assess U.S. National Security Space Management Organization*. Known as the Space Commission and chaired by Donald Rumsfeld just prior to his assuming the position as U.S. defense secretary, that congressionally chartered commission warned in its final report submitted to Congress on 11 January 2001 that: “If the United States is to avoid a ‘Space Pearl Harbor,’ it needs to take seriously the possibility of an attack on U.S. space systems.” The commission laid the foundation for an eventual move toward the creation of a U.S. Space Corps that would defend space-based “military capability” though it stopped short of recommending creation of a space corps in the short term.²¹ In 2003, the Air Force released a *Transformation Flight Plan*,²² including plans for orbiting weapons that would send giant metal rods crashing to Earth, officially called Hypervelocity Rod Bundles, though dubbed “Rods from God.” While the technology is still largely conceptual, the document makes it clear that development and potentially deployment has advocates. That document, however, only talked about hardware. The 2004 *Counterspace Operations* doctrine document adds another component part to the trend of developing space as the fourth battlespace: the component that states when and how such hardware would be used.²³

In April 2007, Air Force Chief of Staff General T. Michael Mosely called the Chinese ASAT test a “strategically dislocating event” because China had demonstrated the capability to kill satellites in LEO. He later added, “this is no different than when the Russians put Sputnik up.”²⁴ He implied that to extend the capability to medium earth orbit (MEO) or geosynchronous earth orbit (GEO) is nothing more than an energy and physics problem.²⁵ Technical analysis seems to support that “the weapons system was used against a satellite that was much harder to hit than more strategically important satellites such as communications and early warning satellites in geostationary orbits.”²⁶

There is no surprise in General Mosely’s reaction to the Chinese ASAT test. One interpretation of the event is that the U.S. had just had its space superiority—let alone dominance—challenged, and was very worried about it. An organization charged with both offensive and defensive counterspace operations as defined in Air Force doctrine could hardly be expected to react

in any other way. Through deliberate design or by accident, China challenged U.S. space superiority, and certainly its ability to be dominant, and put into motion a process of political and military assessment to gauge the threat and respond accordingly with detailed contingency planning, changes to strategy and doctrine, and development and acquisition of new offensive and defensive capabilities. In that sense, it truly was a “strategically dislocating event” for the service that operates and is charged with the protection and assurance of U.S. space-based assets.

Further, Air Force Secretary Michael Wynne, speaking in Washington on 19 September 2007, said, “we were not surprised, we were shocked.”²⁷ He interpreted the event as an egregious act, intended to send a message to the U.S. military that China now considers space a battlefield. Given that the Air Force had watched the two previous Chinese fly-by tests, their surprise is surprising. Perhaps, the degree of Chinese technical competence was the “shock” to which Wynne was referring.

Comments from other military officers and security officials, however, acknowledge the rationality of China’s actions from a strategic and operational perspective, and downplay the concerns General Mosely had voiced. The day after Mosely made his remarks in April 2007, USSTRATCOM Commander General James Cartwright and National Reconnaissance Office (NRO) Director Donald Kerr cautioned against reading too much into the Chinese ASAT test in separate remarks at a conference in Colorado Springs, Colorado. General Cartwright, heading a command responsible for space and strategic weapons, asked: “was this event a watershed? Not in my mind. This is not the defining moment in U.S.-China relations.” He went on to point out that China’s use of a mobile launcher to hit an aging weather satellite was not dissimilar to ASAT tests conducted by the U.S. and Soviet Union in the 1970s and 1980s. “Let’s give the Chinese credit for trying to move forward and bring these attributes to their nation,” he said, adding that the January 11 test was a wakeup call for the U.S. to improve its intelligence and response capabilities. NRO Director Donald Kerr was similarly circumspect.²⁸ Admiral William Fallon speaking in March 2007 about the Chinese ASAT test had stated that China, as a sovereign nation, would sometimes take military measures that others do not like. “A nation is going to do what they think they need to do.”²⁹

On 31 May 2007, the Department of Defense released its Annual Report to Congress entitled, "Military Power of the People's Republic of China 2007." This report, widely read and akin to the old Cold War era "Soviet Military Power" annual assessment is mandated by the National Defense Authorization Act for Fiscal Year 2000 (Public Law 106-65). In this document, the Chinese ASAT test is mentioned prominently in several places. Regarding China's Space and Counterspace capabilities, the document states, "China's space activities and capabilities, including anti-satellite programs, have significant implications for anti-access/area denial in Taiwan Strait contingencies and beyond. China further views the development of space and counter-space capabilities as bolstering national prestige and, like nuclear weapons, demonstrating the attributes of a world power."³⁰ Taken in this context, it should come as little surprise to us that China would pursue these capabilities. Space power may be seen as the logical progression of military capabilities following acquisition of nuclear weapons, intercontinental ballistic missiles, and long-range strike capabilities using submarines and air power. The Soviet Union had these capabilities, and exercised them, much as the U.S. did during the Cold War. It is not surprising that China, as a rising power, would do the same. The military understands that if you develop a capability, sooner or later you have to test it or it is of no value to you.

Throwing Stones in a Glass House

Current U.S. space and counterspace policy and doctrine makes it difficult for the U.S., particularly the military, to protest very loudly regarding China's test. The U.S. has been developing and has been in possession of ASAT technology for over 45 years. Furthermore, other dual-use "defensive" systems such as the Airborne Laser and National Missile Defense systems can easily be applied to the offensive ASAT task. China and the rest of the world are keenly aware of this. In fact, it is a much easier physics problem to target and destroy a single orbiting satellite in a fixed path than it is to engage a ballistic missile with its many multiple independently targeted reentry vehicle (MIRV) warheads. Also, it is unlikely other countries have forgotten that the most aggressive and spectacular

ASAT test in history was executed in the Cold War and involved the detonation of a 1.4 megaton thermonuclear warhead in LEO above the Pacific Ocean. This event, known as Starfish Prime, took place on 9 July 1962. The resulting electromagnetic pulse took out six U.S. and foreign satellites (i.e., about one third of the world's LEO total at the time) and knocked out over 300 streetlights on the island of Oahu in Hawaii while producing an eerie artificial glow in the sky for 20 minutes for the entire world to see.³¹ If comparing immediate negative impact due to the 10% increase in overall known debris created by the Chinese test, the January 2007 ASAT event can be viewed as relatively minor.

It should also be noted that at the time of the Starfish Prime test, the knowledge base regarding potential debris created from ASAT tests was far less than it is now. With the most assets to be negatively impacted by debris, the U.S. has good reason to be attentive now that the issues are known. In the case of the Chinese test, it appears increasing likely that Chinese space debris experts were not consulted prior to the test, and that debris estimates generated by test supporters in the military likely downplayed whatever debris information was provided to politicians. This supports the view that the test was a “chest-thumping” exercise by the PLA and hardliners in China.

The U.S. defense establishment's reaction to the ASAT test is guided and constrained by the National Space Policy of 2006 and the military doctrine that proceeds from it. Specifically, under paragraph 2 of the National Space Policy, one of the principles (cited below) clearly gives the military a mandate to react as it currently has to bolster both its defensive and offensive counterspace capabilities. Two underlying principles of the policy that are typically cited as unilateral and jingoistic by critics read as follows:³²

The United States considers space capabilities—including the ground and space segments and supporting links—vital to its national interests. Consistent with this policy, the United States will: preserve its rights, capabilities and freedom of action in space; dissuade or deter others from either impeding those rights or developing capabilities intended to do so; take those actions necessary to protect its space capabilities; respond to interference; and deny, if necessary, adversaries the use of space capabilities hostile to U.S. national interests.

The United States will oppose the development of new legal regimes or other restrictions that seek to prohibit or limit U.S. access to

or use of space. Proposed arms control agreements or restrictions must not impair the rights of the United States to conduct research, development, testing, and operations or other activities in space for U.S. national interests.³³

While the principle of preserving its rights, capabilities and freedom of action in space is absolutely reasonable for the U.S. to claim, the language of the principle makes it unclear if other countries are expected to be able to claim similar rights or if they accrue only to the U.S. If the latter, it is not reasonable to expect that other countries will forego the same rights claimed by the U.S. Regarding the second principle, rejecting arms control, this language makes public what has been U.S. government policy since the Space Commission Report first questioned whether space arms control was in the interest of the U.S. Given that the rest of the world regularly votes in support of resolutions toward preventing an arms race in space through the United Nations (UN), with the U.S. standing alone against those resolutions, this principle becomes perceived as another example of the U.S. ignoring the perspectives of other countries in favor of a unilateralist approach—not necessarily an effective approach if the U.S. is trying to get the rest of the world to accept it as a benevolent hegemon in space.

Intentionally or not, this bellicose and overtly unilateral section of the document has effectively tied the hands of the U.S. military establishment in diplomatically or politically responding to actions too negatively. Perhaps, in order to provide more options, the policy should be revisited in light of geopolitical realities. With only a few changes, the U.S. could alter its course and establish the U.S. as a constructive player in the international community rather than as a perceived “bad actor” bent on preemptive and hegemonic use of space for its own purposes;³⁴ a perception that possibly prompts or, at a minimum, provides an excuse for bad actions on the part of other countries. Theresa Hitchens’ observation in her Congressional Testimony of 23 May 2007 captures the situation. She states, “if nothing else, U.S. declaratory policy gives Beijing an excuse to pursue a similar course. China’s actions—despite its public dedication to the non-weaponization of space—make it abundantly clear that U.S. space dominance strategy will not go unchallenged.”³⁵

Where Next?

Some U.S. lawmakers have considered the Chinese test as an opportunity to point out the threat posed to U.S. space assets and the need for more action on the part of the U.S. to counter that threat. Republican Senator Jon Kyl from Arizona was among those legislators. Senator Kyl referred to the Chinese ASAT test as a “wake-up call” for lawmakers and made six recommendations for a proposed U.S. response to China:³⁶

1. implement the proposals of the 2001 Space Commission [much of which dealt with management and organization since that was its focus];
2. hold hearings to assure that the Chinese ASAT technology was not based on U.S. technology, shared or stolen;
3. ensure that the U.S. military has access to operationally responsive space, meaning the ability to launch and activate quickly militarily useful satellites;
4. provide immediate funding for the “Space-Based Test Bed,” to include both kinetic and directed-energy components to destroy missiles in their boost phase;
5. increase the budget for “space control” programs; and
6. make “space security” via military means a conservative priority again.

It is likely that over time the military, specifically the Air Force, will respond to these suggestions in a guarded manner. Undersecretary of the Air Force Ronald Segal, Director of the National Reconnaissance Office Donald Kerr, and General Kevin Chilton, Commander of U.S. Air Force Space Command, all testified before the House Armed Services Committee Subcommittee on Strategic Forces regarding national security space activities consequent to the Chinese ASAT test.³⁷ A multitude of technology programs were discussed, as were issues of cost growth and program delays that traditionally plague space programs. Representative Terry Everett of Alabama pointed out that: “we seem to repeat the same concerns about cost growth and program delays year after year. A GAO study . . . found that cost growth is due to the tendency to start programs before knowing whether requirements can be achieved within available resources.”³⁸ Programs that come

with funding increases are always welcomed by the military; others require commitments and actions that will likely face organizational resistance.

For example, though the U.S. Air Force is the “executive agent” for space—owning and operating the bulk of U.S. military space assets—the mission of USSTRATCOM is to provide “integrated space and global strike capabilities to deter and dissuade aggressors and when directed, defeat adversaries through decisive joint global effects in support of USSTRATCOM global missions.”³⁹ Further, because space is a capability utilized by all branches of the military and the security community, as well as the civil and commercial communities, it is impossible to centralize responsibility for space assets and planning in the same way it can be done for ships or tanks. Therefore, “management” issues quickly become ones where ownership or protection becomes involved.

Having the Air Force serve as the Executive Agent for space has yielded advantages in areas like procurement on selected programs⁴⁰ and towards planning to maximize assets and avoid duplication. There have also been, however, questions regarding the Air Force’s commitment to “space” if in competition with “air” priorities.⁴¹ Discussions within the Air Force in 2006 about potentially downgrading Air Force Space Command from a four-star to a three-star billet was considered indicative of even less internal priority being given the organization, which would render it with less organizational clout.⁴² Creation of a separate space force would inherently involve removing a considerable portion of the Air Force annual budget to give to this new service—with a potential proportional loss of Air Force influence among the services as well—and so would probably be resisted.

Alternatively, the Air Force might feel compelled to invest more heavily into the kinds of technology needed for space control programs; but, will it get “new money” from Congress to do so, or must it take that money from the existing budget? If the latter, it would likely meet significant organizational resistance. Will Congress be willing to increase funding for space control programs, which come to, if not cross, the precariously kept line against overt development of space weapons? As much as anything else, the response of the U.S. to the Chinese ASAT test may be as much a function of organizational and bureaucratic politics as it is f doctrine. Space technology is inherently expensive. The quest

for unassailable space technology, arguably an impossible goal, will certainly be obscenely expensive. Whether there is political will to follow that course remains to be seen. Clearly, the space community within the Air Force is keen to bolster its own organizational position, and the Chinese ASAT test will likely serve them well. Air Force Space Command has sent officers to the U.S. Air Force Weapons School at Nellis Air Force Base since 1996, making up approximately 10% of the class. Officers who complete the course are awarded a “W” to their specialty codes. General Kevin Chilton, as commander of the Air Force Space Command, said “I want a “W” in every squadron on my watch. I want our people to aspire, compete, and come back and run a weapons and tactics shop.”⁴³ Political support for making General Chilton’s goal a priority will likely be enhanced consequent to the Chinese test.

Congressman Terry Everett has argued for a comprehensive space protection strategy, consequent to the Chinese test. He says: “as an advocate of vigilant defensive space policy, the Chinese ASAT test is worrisome to me and warrants a clear and considered U.S. response. America must develop a comprehensive space protection strategy, rethink its national security space architecture, and reexamine its policies on space protection and the use of space.”⁴⁴ Again turning to primarily technology and the military for answers, many of the elements of Everett’s strategy have broad-based appeal. He advocates enhancement of space situational awareness (SSA) capabilities, earlier described as space surveillance in the context of monitoring space debris. Besides space debris, with more countries having more assets in space, SSA becomes increasingly important to monitor activities of all sorts, nefarious, unintended, or otherwise. Increased attention to SSA has drawn support from military leaders such as General Chilton. Speaking at the 23rd National Space Symposium in 2007, Chilton said: “before you can start to address any of these threats and the sustainment of any of these capabilities, a commander in this domain must have the same tools that a commander in every other domain has and needs. Whether it’s on land, sea or air, you need situational awareness.”⁴⁵ While there is broad support for increased SSA from across the spectrum of space communities—those advocating weapons and those that do not—it should be remembered that high levels of SSA are required for use of space weapons, so military support is not necessarily benign.

Everett also argues for reexamining our national space architecture, including acquisition programs that lead to cost overruns and schedule delays, and developing Operationally Responsive Space (ORS) capabilities in order to reconstitute assets quickly when needed. While inertia and vested interests have always inhibited the former and resources the latter, it is difficult to argue with the logic of either. More problematic is Everett's tendency regarding "weapons in space" to not acknowledge that what is defensive dual-use technology from one perspective is often seen as offensive from another—hence, perpetuating the myth that the U.S. can address its space security issues exclusively through military and technology "fixes" and disregarding the clear fact that U.S. policies generate responses from other countries, and sometimes not the ones we desire or that further U.S. security interests.

Finally, it is important to note that whereas the U.S. government has rejected arms control as an approach to enhancing U.S. space security, even the Space Commission and more recently members of the military have on occasion spoken out in favor of "rules of the road," which many analysts consider an important first step in moving away from kinetic solutions to space security problems. General Cartwright has likened "rules of the road" for space to highway safety laws, allowing parties to sort out incidents according to conduct. "It's not a . . . pointing-a-finger thing," Cartwright said. "But, it is an understanding of responsibility and making sure that we have some measure [of behavior]. You expect me to stay on the right-hand side of the road when you approach me and that type of thing."⁴⁶ A free-for-all is clearly not in anyone's interest, least of all the U.S., with the largest number of space assets potentially at risk. In answer to "advance questions" prepared for his confirmation hearing as Commander of USSTRATCOM before the Senate Armed Services Committee, General Chilton endorsed exploration of a space code of conduct, rules of the road, for space,⁴⁷ adding to the number of those who recognize that a free-for-all is not in the interests of the U.S.

Space Cooperation: A Different Approach

The same document that ties the hands of the U.S. military in its response to the Chinese ASAT test also has the potential for defusing the current situation. China is aggressively pursuing its owned

manned spaceflight program, and it is intent on continuing launching taikonauts into space, building a space laboratory and eventually a space station. Furthermore, China has embarked upon an aggressive lunar exploration program, first with robots, and then likely with a manned mission, and eventual long-term sustained lunar presence. Currently, the U.S. and China are working independently of each other on similar goals, creating the perception of a competition that only the U.S. can lose, since China is the underdog, working at a slow, incremental pace, yet still outpacing an underfunded and anemic U.S. Vision for Space Exploration. Replacing competition with cooperation would eliminate the perception of a "space race" and, equally important, co-opt the Chinese into a manned exploration enterprise that would potentially redirect limited Chinese resources into mutually beneficial and constructive space exploration initiatives.

The U.S. National Space Policy already has the necessary verbiage and stated goals and objectives to move in this direction. Specifically, the policy reads as follows:

Encourage international cooperation with foreign nations and/or consortia on space activities that are of mutual benefit and that further the peaceful exploration and use of space, as well as to advance national security, homeland security, and foreign policy objectives.⁴⁸

In support of President Bush's 14 January 2004 Space Vision, such a policy would leverage and concentrate the resources of the two most promising space powers in the leadership of a global space exploration initiative. It would also garner soft power for the U.S. at a time when the U.S. image of unilateralism, preemption, and perceived heavy handedness in the Global War on Terror could use a facelift. It is an opportunity that will take leadership and courage to execute, but the potential gains far outweigh the risks.

However, working with China on civil space programs will not immediately or directly defuse military tensions between the U.S. and China or assure space security. The U.S. still faces the daunting task of prioritizing its limited military space resources between space support, force enhancement, space control, and force application. The U.S. must maintain a robust military space program and protect its assets- the question is how. It still must

decide whether continuing to pursue space domination is technically and economically viable—or whether to change course. But, working with China on civil matters—incrementally, likely starting with space science or Earth observation and working toward a grand exploration program—would allow both countries to build trust, the kind of trust imperative to space security in the future.

Alternatively, heading down a path of conflict with the Chinese is fraught with risk for all humankind. A shooting war in space and the ensuing debris could quickly render Earth orbital space unusable for centuries. At a minimum, it would greatly increase the cost of putting payloads into orbit due to the hugely elevated risk of possible collision with debris. One can only imagine the ensuing insurance premiums. The situation could severely limit or even shut down commercial space operations due to the prohibitive costs involved; nearly impossible to imagine since space-based systems provide much of the connectivity required for an increasingly globalized world. Realistically, the U.S. cannot afford not to try cooperation. The alternative is just not acceptable or feasible. Space debris generation due to kinetic warfare in space is the new Mutually Assured Destruction (MAD) of the 21st century. Deterring events, which produce indiscriminate and dangerous debris fields, must be a priority.

Conclusion

Space, both Earth orbital and outer space, is a global asset. The U.S. is a leader in space, but does not own this common area. Much like the high seas, space is an area in which we must be able to operate, and as technology continues to march forward, upon which we have become increasingly dependent for functions such as navigation, communication, weather, and military support and enhancement applications. As such, our stated policies and strategies pertaining to space ought to be coherent and aligned so that all nations look to the U.S. as a benevolent leader, intent on preserving international freedom of use and access to space-based assets. Unfortunately, there is a high level of ambiguity between published U.S. national space policy objectives and the U.S. military's stated vision, missions, goals, and objectives in space. How other nations perceive our interests and operations in space will drive the strategic landscape, and consequently, their decision-making

processes in the allocation of their scarce resources to space initiatives. In other words, it will set the stage for spacefaring nations to decide whether they will concentrate their efforts in the realms of military, commercial, or exploration endeavors. The reality is that China produced more individual pieces of orbiting space debris than in any other accidental or intentional incident, in the history of space flight. The event was condemned internationally as reckless and irresponsible. Moreover, it undermines China's own official policy of using space for peaceful purposes and against the weaponization of space. The orbiting debris cloud from this destroyed satellite now directly threatens many U.S. and international satellites in LEO, including the International Space Station and Space Shuttle missions. Rules and guidelines for space operations, much like the international "Rules of the Road" for ships at sea are now viewed by many as an imperative. It is in U.S. national security interests to be an advocate for these types of international treaties and agreements or the U.S. may quickly find large areas of Earth orbital space unusable, littered with hazardous space junk and debris.

Because of its organizational responsibilities, the U.S. Air Force is inherently the most challenged by the Chinese ASAT test and potentially the most zealous in its response—yet even there, only a relatively small portion of the Air Force would likely support an excessive response without new money being provided to it. While the Air Force is responsible for air and space (at times has even referred to itself as an "aerospace" force, and most recently as a cyberspace force as well), culturally it is still dominated by those focused on air assets. Therefore, until and unless a separate space force is created, with all the pros and cons such a move would involve,⁴⁹ it is unlikely that a barrage of new space control programs, and thus by technical default, space weapons programs, will emerge. Further, the U.S. must be careful what it condemns, or it could find itself being hamstrung by its own condemnations later since it is the most adamant about keeping all options open.

Through discussions with Chinese analysts and officials, subsequent to the Chinese ASAT test, one thing has become clear about China and its test motivations—that China is not a monolithic nation. It is composed of many different constituencies and not everything that happens or appears in print is deliberate

or reflecting a consensus. Some simply reflects organizational, bureaucratic, or individual cognitive positions. The same is true in the U.S., and even within the military. There will likely not be a single response to the Chinese ASAT test, but an evolving set of many responses. The Chinese ASAT test likely did them more strategic international harm than good. Importantly, U.S. actions in response need to be directed at enhancing rather than hurting the overall security position of the U.S.

Notes

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