Marshall Policy Outlook
GEORGE C. MARSHALL INSTITUTE
October 2006

The War in Space Has Already Begun

Jeff Kueter, President
George Marshall Institute

The revelation in *Defense News* ("China Tried to Blind U.S. Sats with Laser," September 25, 2006) that China has been conducting tests over the past several years designed to blind U.S. satellites should serve as a wake-up call to the American public and the national security establishment. If there ever were questions about whether future adversaries would use space as a battleground, they are now clearly settled.

By virtue of the words of their strategic thinkers and now their very actions, the Chinese recognize that space-based assets are keys to American military might and are now actively pursuing and using the means to threaten or disable those assets.

Why is Space Important to the U.S.?

"Space capabilities are inextricably woven into the fabric of American security, scientific, and economic activities," Lieutenant General C. Robert Kehler, the Deputy Commander of U.S. Strategic Command, told the House Strategic Forces Subcommittee on June 21.[1] Space-based assets have altered the way the U.S. conducts conventional warfare on land, on sea, and in the air. Today's space systems fill (1) environmental monitoring; (2) communications; (3) position, navigation, and timing; (4) integrated tactical warning and attack assessment; and (5) intelligence, surveillance, and reconnaissance missions.[2] These missions are integral to a new American way of warfare. This "way of warfare" requires less manpower, puts fewer U.S. forces in harm's way, and integrates all of these space-based missions into real-time boots on the ground and stand-off precision strike operations.

In short, the U.S. has essentially fused its land-based conventional power projection capabilities with its space-based communications, navigation and reconnaissance capabilities. This new system of operations and enhanced capabilities is known by some as a space-enabled reconnaissance strike complex. In 1991, during the first Gulf War, millions tuned into their televisions daily and were wowed by the capabilities of U.S. precision-guided weaponry; a phenomena dubbed the CNN effect by political scientists, and yet didn't realize that that class of weapon accounted for just 8 percent of the munitions used. The effect on public and international perceptions was dramatic and their expectations for the future of American warfare have largely been fulfilled. By 2003, when we returned to Iraq, 68% of the munitions used in the 29-days of official operations were precision guided.

Many of the assets on which the U.S. military relies, particularly in the communications sector, are owned by commercial firms. During Operation Iraqi Freedom, for example, up to 80% of the bandwidth used by the U.S. military was provided by commercial systems. These systems are expensive and replicating them as defense-only assets would be very costly. So, for justifiable economic reasons, we have chosen dependency on commercial firms to provide essential national security functions.

Most significantly from a strategic stability perspective, the purpose and function of space assets has changed. Space-based reconnaissance, which was the principal

national security function of space for nearly all of the Cold War, brought a degree of transparency to the U.S.-Soviet balance of terror. Under the prevailing doctrines of massive retaliation and mutually assured destruction, the ability to detect the opponent's missile launches quickly ensured that either side could launch its own missiles before they were destroyed, thus precluding the possibility of a winnable nuclear exchange and therefore discouraging any launches at all. Space reconnaissance was a stabilizing force. Each superpower knew what the other was doing.

The new uses of space represent fundamental changes in the functions and roles of space systems. Space assets no longer just tell us where people are and what they are doing; they are integrated with the weapon systems used to target and destroy. They are part of the weapon system, and not an insignificant part at that. Used in this fashion, they are attractive targets for a future adversary.

Military thinkers around the world appreciate the new challenges they face and are beginning to think openly about how to confront them. Recent analyses of Chinese strategic thinking, for example, suggest a detailed understanding of the significance of denying the information provided by space assets in any future conflict.[3] In future conflict, these writings suggest China will seek to exploit space to its own advantage and deny its use to her adversaries. Chinese strategic writers focus on ways to physically destroy satellites as well as denying or disrupting their use by blinding or jamming them. We now know the pursuit of this strategy is more than hypothetical. The threat is real and it will only get worse.

This means that our existing set of space assets are weapons. We look at them that way and prospective adversaries look at them that way. The tired debates about the militarization and weaponization of space that produced so much angst during the Cold War are over.

Should We Care About Real Or Potential Threats In Space?

Space systems have numerous vulnerabilities. These include intentional strikes mounted against ground stations, launch systems, or orbiting satellites. Space systems are also vulnerable to disruption, which could disrupt or deny their use when desired, or to actual destruction, which might be accomplished through an anti-satellite attack or explosion of an electromagnetic pulse. As China has shown, these are not hypothetical concerns.

Again, referencing Gen. Kehler's remarks to the House, "GPS jamming has occurred as has jamming of commercial telecommunications satellites … Open source reporting has cited examples of incidents, both intentional and unintentional, that have impacted space capabilities …" He concluded by saying that "while none of these incidents proved catastrophic, our enemies clearly understand the reliance we place on space capabilities and we should expect the level and sophistication of efforts to deny us the advantages of space to increase in future conflicts."[4]

What Can We Do About It, If We Care About These Threats?

The U.S. must come to grips with the fact that the days of unchallenged use of space is coming to an end. Other nations can access space, will operate there in pursuit of their own national interests, and are looking for ways to gain strategic advantages. We must act decisively to preserve our military capabilities and the advantages we accrue from having those capabilities.

The United States should reject any international agreement that would further restrict the use of space to protect national security satellites. At the same time the Chinese are conducting laser blinding tests, diplomats are ratcheting up their calls for a new set of treaties and international agreements to constrain actions in space.

Despite our current lead in space activities, there are serious concerns about the U.S.'s ability to sustain the quantity and quality of space activities. Nearly every U.S. space program faces budget overruns and schedule slippages, which is indicative of systemic management concerns, changing requirements, and the complexity of the tasks at hand. Federal research and development in space activities and the size of the aerospace workforce and related academic cohort are flat or falling, suggesting a perceived lack of priority or faith in the future of these industries and activities. In short, whether the innovative capacity of the U.S. can sustain our present advantages is open to question.

Recognition of the challenge China has put before us provides ample warning for the American public and its leaders to decide how best to defend the U.S. from a war in space. Only high-level leadership by the Administration and the Congress, sustained commitment of priority and resources, and public recognition of the seriousness of the threat and the importance of it, can reverse those trends. And reversed they must be.

Notes

1. Kehler, Lt. Gen C. Robert. (2006). Statement before the House Strategic Forces Subcommittee. Committee on Armed Services. June 21: 2.
2. Hays, Peter. (2006). *Toward a U.S. Grand Strategy in Space*. George C. Marshall Institute. March 10: 5.
3. Center for Naval Analyses. (2006). *China's Space Program: Civilian, Commercial, and Military Aspects*. (CNA: Alexandria, VA): 11-12. "One such theme is the importance of securing information dominance. According to the speaker, Chinese writings suggest that failure to achieve this dominance makes victory unlikely. As a result, PLA writings focus on the need to use information derived from space-based platforms, while denying such information to opponents. The speaker noted that PLA writings describe information technologies as having played an essential role in recent wars. These writings emphasize that the Americans' ability to use a combination of space and airpower has allowed U.S. forces to completely dominate their opponents; consequently, PLA analyses conclude that space technology is crucial to the ability to obtain and employ information in wartime. Chinese military articles indicate that the current, nascent Chinese concept of military space operations is to exploit space for their own ends, while denying it to their adversaries. The speaker cited one Chinese article, which stated, 'The securing of information dominance cannot be separated from space dominance. It can be said, gaining space dominance is the root of winning informationalized war.' Chinese writings on the importance of dominating space apparently focus as much on "soft killing" as on "hard killing" systems in space—that is, interfering with satellites and their transmissions or striking at terrestrial-based space assets. The overall aim is to deny the enemy information from space-based platforms by blinding and deafening their space systems, and to disrupt navigation satellites."
4. Kehler, 11.