

## **Arms Race in Space? U.S. Air Force Quietly Focuses on Space Control**

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While the U.S. Congress was debating the defense budget this summer, Air Force officials were downplaying their efforts to develop small, orbiting weapons to disrupt or destroy enemy satellites.

In a June 24 meeting with reporters at the Pentagon, Peter Teets, Air Force undersecretary, denied the Air Force was working on radio-frequency or laser jamming microsatellites. A June 30 article in *Space News* quoted an Air Force spokesman as saying that the service had "dropped" work on such satellites because the "technology was deemed too immature."

Both statements are true, in a narrow sense. Efforts to build attack satellites are currently taking a back seat to ground-based technologies that disrupt enemy space assets and protect our own - what the Air Force calls "space control" and "counterspace operations."

But the shift in research priorities does not mean the Air Force has given up plans to put these weapons in space. The service's "Strategic Master Plan for FY 04 and Beyond" makes it abundantly clear that officials intend to deploy a variety of space weapons eventually. The Master Plan calls for development of "defensive and offensive counterspace" capabilities during the next two decades that will produce "active on-orbit protection" and "space-based counterspace" systems between 2016 and 2028.

And despite its acknowledgement that the technology is not yet ready, the Air Force continues to pursue the development of microsatellite weapons. The service's 2004 budget request gives a program called Advanced Spacecraft Technology \$14.4 million to develop and test a microsatellite "to demonstrate ... operations around a non-cooperative resident space object." The program also contains \$14.8 million to "develop microsatellite (10-100 kilogram) technologies ... [that] could enable applications such as space protection, [and] counterspace capabilities."

These efforts are part of several microsatellite technology programs, including the Experimental Satellite Series (XSS). Launched Jan. 29, the 28-kilogram XSS-10 successfully demonstrated its ability to move closely around another object to take images. The contract to build its successor, XSS-11, and its more specific sensor payload already has been awarded.

Taking pictures is not much of a threat, but the Air Force sees these satellites as more than just shutterbugs. The "single strongest recommendation" of the Air Force's 1999 Microsatellite Technology and Requirements Study was "the deployment, as rapidly as possible, of XSS-10-based satellites to intercept, image and, if needed, take action against a target satellite," according to an unclassified summary published in 2000.

In principle, it would be possible to fit XSS-like satellites with any kind of payload, weapon or not, provided it was small enough. The Air Force could use either a radio frequency or laser jammer to disrupt communications and remote sensing satellites. It remains a challenge to building workable, lightweight radio frequency jammers and lasers. Nonetheless, the 2004 defense budget request contains substantial money for ground-based counterspace systems that could be miniaturized over time.

Alternatively, such a satellite could house a small kinetic kill vehicle designed to smash into a nearby enemy satellite. It is not inconceivable that technology from the Army's moribund Kinetic Energy Anti Satellite (KE-ASAT) program might be so used (something that was raised as a possibility by the Air Force Microsatellite Requirements Study). The Missile Defense Agency also is developing 1- to 2-kilogram Miniature Kill Vehicles that could easily intercept satellites.

The problem here is not research on microsattellites. These would be very useful for many critical military and civilian tasks, such as monitoring space junk, diagnosing ailing satellites, or creating more robust networks of communications or imaging satellites to replace today's vulnerable behemoths. Such programs should be vigorously explored. Rather, the central issue is whether the Air Force ought to be planning to fill the skies with on-orbit weapons - a major new strategic goal that never has been properly discussed or debated in the wider public domain. In fact, U.S. space policy has long eschewed the deployment of space weapons. And arming the heavens has never been popular with Congress or the American public.

Many in the Army and Air Force further worry that ASATs may be more trouble than they are worth, given the risks of collateral damage from debris and the possibility that ASAT testing will goad others into similar programs that would threaten the U.S. edge in space.

There are plenty of reasons to worry about the wisdom of starting a 21st century space race, not least the issue of cost (space operations are notoriously expensive). Weighing the risks and benefits of arming space is a critical national security debate that needs thrashing out before decisions to build such weapons are made.

It is simply bad public policy to allow the Air Force and the Pentagon to take us up that path with no questions asked.