

By Robert S. Dudley, Editor in Chief

The Struggle for Space

A FEW years ago, retired Gen. Bernard A. Schriever, the godfather of military space, issued a warning: America's superiority in space, the cornerstone of US military power, was not secure. "We have almost no means to deny usage of space to an adversary," said Schriever, "let alone protect our own usage."

To Schriever, the problem was not so much technical as political. Washington, he said, kept letting arms control get in the way of vital Pentagon "space control" programs.

That was in 2000. Four years have passed, and the pursuit of space-related weapons—even defensive ones—still faces ferocious opposition. Critics say it will spark a ruinously expensive arms race, upset nuclear stability, and so forth.

Things look different, though, to the Air Force, which operates most US military space systems and controls 90 percent of the DOD space budget. USAF officials say space systems are vulnerable to disruption, and adversaries are learning to exploit space to their own advantage.

"It's my belief that we can no longer view space as benign or a sanctuary," summed up Gen. Lance W. Lord, commander of Air Force Space Command, Peterson AFB, Colo.

It is a view that appears more and more in Air Force studies, particularly in Space Command's "Strategic Master Plan," a paper that places unprecedented emphasis on the need for "counterspace" capabilities.

This is not really surprising. America's military has come to depend on space to an extent few would have thought possible. In the Iraq war, US forces used 50 satellites for surveillance, communications, navigation, warning, and weather forecasting.

The value of US space assets has not escaped the notice of our adversaries, who now see them as attractive targets. The peril is spelled out in two classified studies, "Threats to US Space Systems and Operations Over the Next 10 Years" and the "Interim Space Capstone Threat Capabilities Assessment." Evidently, they make for somber reading. To quote

Space Command: "We cannot expect to continue to have unchallenged access to our space capabilities."

Indeed, such challenges have begun. In Gulf War II, Iraq tried—unsuccessfully—to jam the GPS signals in hopes of snarling the guidance of US precision weapons.

In the future, Space Command will need to do more than prevent such

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interference. It must also keep adversaries from using space against US forces. Commercial satellite firms produce a flood of quality images and other capabilities, which are now available to almost anyone.

The Air Force is approaching the counterspace problem on three fronts.

■ Highest priority goes to strengthening "space situation awareness," the foundation of counterspace actions. "There are some 10,000 objects in space," said Peter B. Teets, Air Force undersecretary and DOD point man for space. "We know precious little about many of them, and we'd like to know more."

The nation's Space Surveillance Network comprises older ground-based radars and optical sensors, one space-based sensor, and a control center. It is "less than adequate," says USAF.

Space Command would upgrade some of these systems. It also envisions a Space Based Space Surveillance system—a constellation in low Earth orbit that would track objects using optical sensors—and an Orbital Deep Space Imager system whose powerful sensors would provide detailed images of space objects.

■ Next in importance comes development of defensive counterspace powers—ways and means to protect orbital and ground-based space assets.

USAF is undertaking numerous projects to address a range of threats: computer hackers that take over a satellite's controls, lasers that blind

delicate sensors, satellites that destroy others, radio transmissions that interfere with command links, and high-altitude nuclear blasts that would fry satellite components.

Space Command is updating defensive tactics, techniques, and procedures. These could include moving a satellite to avoid a crash with a hostile craft or closing apertures to prevent damage. All future spacecraft will be equipped with countermeasures. Off-board systems could help defend spacecraft, too.

Also on tap is a new ground-based Rapid Attack Identification, Detection, and Reporting System—"RAIDRS"—to analyze satellite data and characterize attacks.

■ The last and least urgent step focuses on "offensive counterspace" capabilities—the power to keep an adversary from using space systems for his own military advantage.

USAF is developing a small, mobile, ground-based system able to temporarily incapacitate a satellite's communications. A second system would be built to disrupt the workings of a surveillance and reconnaissance craft.

Such systems would cause no permanent damage. At present, there is scant public discussion of destructive antisatellite systems. The Air Force tested such a system in the 1980s.

According to Space Command, no formal US policies prevent development of counterspace capabilities. The major question, as Schriever pointed out, concerns political will.

Unless the US makes a course correction, it will, at some point, probably suffer a serious attack on its assets in space, one that would hamper its military operations. Seen in that light, USAF's space proposals seem not only sensible but restrained.

The Bush Administration and Congress need to get on with the task of funding these projects so that airmen can do their work. They have no doubts about their mission.

"We understand our first role as *airmen* is to gain and maintain *air* superiority," said Lord. "Space is no different. Space superiority is our mandate." ■