

The Future of Satellites

New Problems and New Players in the Satellite Game

Over the past four decades, satellites in orbit around the earth have become absolutely critical to commerce, communication, and national security. Military and commercial dominance of (or at least basic competence in) the satellite business will be a key to America's success in the coming years. But recent press reports indicate that the nation's military reconnaissance satellite program is in poor shape, and that an unprecedented proliferation of foreign-owned commercial "microsatellites" is near-at-hand.

The U.S. has spent about \$200 billion on its military satellite program since its inception some four decades ago. Most estimates suggest that the American military and intelligence community now have roughly 100 satellites in orbit dedicated purely to national security reconnaissance and communication. These satellites are

operated by the highly secretive National Reconnaissance Office (NRO), run out of the Pentagon and staffed jointly by Defense Department and intelligence community personnel.'

The NRO has for years been accused of mismanagement and gross inefficiency, though the classified nature of its budget and operations has made a public accounting impossible. In August, *U.S. News & World Report* published the results of a six-month investigation into the agency, and its findings were not encouraging. Despite its \$7 billion budget, the NRO is routinely in the red, and rarely on schedule. Perhaps more importantly, it has run into a series of technical problems in recent years that have deprived the American intelligence community of some potentially crucial eyes and ears—at a time when the nation, slogging through a multi-front war on terrorism, cannot afford an intelligence lapse.

Two NRO satellites launched in the past two years have malfunctioned in ways that have seriously hindered their performance; this has caused the agency to delay several planned launches of new satellites, until the problems with the existing ones can be diagnosed. Meanwhile, a substantial number of America's spy satellites are nearing the end of their planned lifespans, and replacements are slow to come.

All of this has led to two key changes in policy. First, the military and the intelligence community have begun to make greater use of civilian satellites, operated by private companies, both for communication and for reconnaissance. Second, the CIA—apparently with support from Defense Secretary Donald Rumsfeld—has opened a new office to manage future spy satellite operations, potentially doing an end-run around the NRO.

Meanwhile, as the future of America's large and expensive cutting-edge spy satellites remains less than certain, a new breed of small, highly mobile satellites geared for non-military use is hitting the scene. These "microsatellites," in some cases weighing less than 50 pounds each (larger satellites weigh thousands of pounds), offer greater flexibility and control, and can dramatically reduce the costs of simple over-

flight and reconnaissance tasks.

The European Space Agency is leading the way in microsatellite operations with its PROBA (Project for On-Board Autonomy) program. The first PROBA satellite is already in orbit. It can navigate itself—using GPS signals and sophisticated constellation mapping—and can receive and automatically prioritize work-requests (for climate monitoring, ocean surveys, and other information-gathering) from scientists around the world.

Although the Europeans are the biggest players in the microsatellite game, they are not alone. Some smaller nations have begun similar programs. Nigeria and Turkey, not normally known as leaders in the aerospace industry, both recently began such projects, with microsatellites launched from Russia in September; others, including Thailand and Vietnam, may soon do the same.

In the early years of man's forays into space, the satellite game was a clash of superpowers. Today, smaller nations and private interests are increasingly involved, which suggests that America's old approach to keeping an eye on the national interest from space is in need of a serious overhaul.