

# ISSUE BRIEF

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## Acquisition of the New “Space Fence” Will Improve Security *Baker Spring*

The number of objects in orbit, including satellites and space debris, continues to increase, and these objects need to be tracked in order to reduce the risk of collisions. The number of participants who are operating systems in the space domain is also growing, which reduces the level of security in space. It is necessary to improve the monitoring capability of the Air Force, known as “space situational awareness” (SSA), in order to improve space security and safety for all responsible spacefaring nations.

Thankfully, the Air Force is acquiring the next generation of the Space Surveillance System (more often referred to as the “Space Fence”). However, the budget impasse, including the automatic defense funding reductions under sequestration, has led Air Force Space Command to discontinue full operation of the current Space Fence and postpone the next generation Space Fence final contract award date until next year. Given that improved security in space is a matter of critical importance to the U.S. military, NASA, and commercial space operators, this program should be put back on track.

**Not a New Concept.** Introduced in 1961, the existing Space Fence is capable of tracking objects that are

10 centimeters or greater in size.<sup>1</sup> However, according to NASA, there are about 500,000 estimated items between 1 centimeter and 10 centimeters and more than 100 million items smaller than 1 centimeter.<sup>2</sup>

The next generation Space Fence, by comparison, is being designed to provide much improved capabilities in detecting and tracking space objects. It will be composed of up to three S-band radars capable of tracking more than 100,000 objects and would expand coverage to the Southern Hemisphere, providing more accurate space data. The modernized Space Fence will be more sensitive, able to “detect, track, and measure an object the size of a softball orbiting more than 1,200 miles in space,” and it would also “provide evidence of satellite break-ups, collisions, or unexpected maneuvers of satellites.”<sup>3</sup>

**Contested Space.** Security in space is now recognized as being essential to preserving many aspects of modern life in today’s world. Cell phones, navigation, weather prediction, and electric grids all hinge on space systems. This dependency underscores the importance of space security, safety, and the freedom of all cooperative nations to maneuver in space without restraint. Further, freedom to operate in the space domain is a cornerstone of the U.S. military’s mission to provide broader security to the American people and U.S. allies and friends around the world.

The U.S. military’s existing dominance in the space domain will not remain unchallenged. Heritage’s Dean Cheng writes that the People’s Liberation Army (PLA), charged with safeguarding Chinese national interests, favors the ability to “exploit space at times and places of its own choosing and ... be able to deny an opponent the same freedom of action.”<sup>4</sup> China’s space policy, therefore,

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has resulted in actions such as its successful kinetic anti-satellite (ASAT) test against a weather satellite in 2007. The test further congested outer space with thousands of satellite fragments, some of which are too small to track with current technologies.

Further, late this September, a Chinese satellite successfully attached itself to another satellite with a robotic arm while in orbit. This event is a cause for alarm because it can lead to increased Chinese abilities to jam or disable space systems and severely hinder the U.S. military's global strike capabilities. Former Heritage senior research fellow John J. Tkacik Jr. stated that Beijing's ASAT systems send a clear message "that the PLA can fight a modern war in the Western Pacific without space sensors, global positioning, and telecommunications, while the United States cannot."<sup>5</sup>

The U.S. should not grow complacent with its spatial superiority and should ensure that its technological edge remains above the competition so it does not become susceptible to foreign interests.

**What Congress Should Do.** Given the critical importance of security in space to broader U.S. military capabilities, the civilian space program run by NASA, and commercial activities that improve the quality of life for all Americans, Congress should make it clear to the Air Force that it views the near-term acquisition of the next-generation Space Fence among its highest national security priorities. It can do so by taking the following steps:

- **Encourage the Air Force to award final contracts for and fully fund the next-generation Space Fence as soon as possible.** This includes ensuring that adequate funds will be provided for moving this acquisition forward, ideally by finding a way to cease the application of sequestration to defense accounts.

- **Mandate that the Air Force enhance security under the circumstance of a space environment that the Obama Administration has acknowledged is becoming more congested, contested, and competitive.** More than 60 nations operate approximately 1,100 satellites in space. These numbers will likely increase once other nations gain indigenous space capabilities. With a modern Space Fence, the U.S. would gain increased SSA and thereby maintain its dominance in the space domain in this emerging circumstance. Congress can do this by adding a simple statement of policy to the pending National Defense Authorization Act (NDAA) for fiscal year (FY) 2014.

- **State that it is the policy of the U.S. to provide for the "freedom of space."** The U.S. has long used the Navy to preserve freedom of the high seas for the purpose of enhancing shipping and trade, thereby bolstering the global economy for the benefit of all. The same basic concept should be applied to the space domain. This statement of policy should go on to state that enhanced SSA capabilities by the Air Force are essential to the achievement of this purpose. This statement of policy can also be included in the NDAA for FY 2014.

**Maintain U.S. Dominance.** First and foremost, Congress needs to protect national security by providing the means to the Air Force to maintain U.S. dominance in space. Congress also needs to send a message to the world that the U.S. is committed to providing for the freedom of space in order to enhance global trade and prosperity.

If the U.S. is not well aware of what is happening in space, it will be unable to fulfill either of these two

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1. Mike Gruss, "With Current System Slated for Closure, Air Force Defers Next-gen Space Fence," *Space News*, August 23, 2013, <http://www.spacenews.com/article/military-space/36919with-current-system-slated-for-closure-air-force-defers-next-gen-space> (accessed October 30, 2013).

2. National Aeronautics and Space Administration, "Orbital Debris: Frequently Asked Questions," March 2012, <http://orbitaldebris.jsc.nasa.gov/faqs.html> (accessed October 30, 2013).

3. U.S. Air Force, "Air Force Space Command to Discontinue Space Surveillance System," August 13, 2013, <http://www.af.mil/News/ArticleDisplay/tabid/223/Article/466832/air-force-space-command-to-discontinue-space-surveillance-system.aspx> (accessed October 30, 2013).

4. Dean Cheng, "China's Space Program: A Growing Factor in U.S. Security Planning," Heritage Foundation *Background* No. 2594, August 16, 2011, <http://www.heritage.org/research/reports/2011/08/chinas-space-program-a-growing-factor-in-us-security-planning>.

5. John J. Tkacik Jr., "Beijing's Intentions in Space," Heritage Foundation *WebMemo* No. 1431, April 25, 2007, <http://www.heritage.org/research/reports/2007/04/beijings-intentions-in-space>.

purposes. This is why the quick acquisition of the next generation Space Fence should be among the highest priorities for Congress.

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