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Missile defenders make case for testbed satellite

About three dozen foreign countries admit to having a ballistic missile program, up from a dozen in 1991, and the missiles are becoming faster and more mobile and increasingly have dimmer exhaust plumes, making them harder to see from space.

That's the alarming proliferation scenario painted by U.S. Air Force Col. John Wagner, who commands the wing that operates America's missile-warning satellites, at an Oct. 3 Air Force Association seminar in Washington, D.C.

The U.S. military is worried about more locations around the globe, so the Air Force wants to build an instrument called the Wide Field of View Testbed, or WFOV. The idea is to send WFOV to orbit on a small geosynchronous satellite and test technologies and processing methods that might be incorporated in the satellites that will succeed the Space Based Infrared System satellites, which the Air Force is now launching as the primary U.S. missile-warning satellites.

A key challenge will be to figure out how to handle the vast volumes of data that a wide-field sensor would generate. The military needs to determine "what that data set is going to look like" and then "build the algorithms to detect a missile threat out of that," said Air Force Col. Michael Guetlein, system program director for the service's Remote Sensing Systems Directorate, according to a transcript of the seminar provided by the Air Force Association.

The orbiting test bed is expected to take advantage of technology that has become available since the Air Force began developing SBIRS in 1996. For instance, the Leidos-built Commercially Hosted Infrared Payload, or CHIRP, instrument, which the Air Force operated on the SES-2 commercial communications satellite for 27 months ending in December 2013, showed that a wide-field-of-view staring sensor could help the military understand "short duration infrared events," according to the Air Force.

Lockheed Martin

The Wide Field of View Testbed is expected to take advantage of technology that has become available since 1996 when the Air Force began developing the Space Based Infrared System (shown here at the Lockheed Martin facilities in Sunnyvale, Calif.).

The WFOV sensor would be launched on an unspecified geosynchronous satellite as early as December 2016, according to the Air Force's fiscal 2015 budget request. The results of the test bed effort could help the Air Force decide what will follow the six SBIRS satellites it is buying to replace the aging Defense Support Program constellation.

However, the House-passed fiscal 2015 defense authorization bill would withhold some of the money requested for the test bed until the Air Force completes a broader study, or analysis of alternatives, on what should come after SBIRS. That study is due to be completed next year.

Work on the SBIRS satellites, meanwhile, is well underway. The first two satellites are in geosynchronous orbit, the third is undergoing ground tests and the fourth is in final assembly. The Air Force awarded a $1.9 billion contract to Lockheed Martin in June to finish building the fifth and sixth satellites. The program has also launched two payloads on host satellites.

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