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FACT SHEET

The SM-3 Block IIA Interceptor

A New Arms Control Challenge

Planned upgrades to the Aegis Ballistic Missile Defense (BMD) system are likely to have serious effects on the world's strategic nuclear balance. While currently a regional defense, new SM-3 Block IIA interceptors could make the system theoretically capable of engaging strategic (i.e., intercontinental-range) nuclear missiles. Plans call for deploying hundreds of the new interceptors on mobile, globally deployable Aegis BMD ships. The system's actual strategic defensive capability is severely limited by its vulnerability to decoys and other countermeasures against which it has not yet been tested. Nonetheless, the dramatic expansion of the system will have a devastating effect on prospects for extending existing nuclear arms control agreements and negotiating those that might follow. It will also likely motivate Russia and China to diversify and grow their nuclear weapons arsenals.

Strategic Capabilities of the Block IIA

The current Aegis BMD program is intended to provide US Navy cruisers and destroyers the capability to intercept short- to intermediate-range ballistic missiles using the SM-3 Block IA and Block IB interceptors. When properly cued by sensors, the system can defend areas measured in hundreds of kilometers —areas too small to provide practicable defense of the entire United States.

The SM-3 Block IIA interceptor will be more capable, designed with a more powerful booster and a sophisticated kill vehicle. Its greater speed permits covering much larger geographic areas and its enhanced capabilities may allow intercept attempts against intercontinental ballistic missiles (ICBMs) as they descend toward US territory. Engaging ICBMs headed toward the contiguous United States would require basing the Block IIA interceptors on Aegis BMD ships positioned off US coasts, and possibly an inland Aegis Ashore site (see figure to right).

The system has not been tested against an ICBM, and in practice, operating in a realistic environment including adversary countermeasures will limit the system's effectiveness.

Block IIA deployment is scheduled to begin in the 2019–2020 time frame. In response to a congressional mandate, the Missile Defense Agency plans to conduct an intercept test of the Block IIA against an ICBM-range target in early 2020 to demonstrate its suitability.

Mobile Missile Defense on a Global Scale

While the Aegis system is currently deployed mainly in East Asia and in Europe, Aegis BMD-capable ships can be rapidly deployed to other locations. By 2023, the US Navy plans to have 60 such ships, and to eventually field between 80 and 100.

The inventory of Block IIA interceptors is projected to be quite large; current plans call for procuring 351 (GAO 2016), and this is likely to grow. Including the 64 Ground-based Interceptors (GBIs) planned for the US Ground-based Midcourse Defense (GMD) national missile defense system, this presents a considerable inventory of strategic-capable interceptors.

Block IIA interceptors operate similarly to GBIs, targeting long-range missiles in the midcourse phase of flight, above the atmosphere, using an infrared-homing kill vehicle that attempts to collide with its warhead target. While the Aegis missile defense interceptors have a better test record than the GMD system, neither system has been tested under operationally realistic conditions (DOT&E 2018). Furthermore, both systems are

Schematic of Sea-Based Missile Defense

The potential for sea-based interceptors to provide homeland defense has long been recognized. A circa-1992 Strategic Defense Initiative Organization schematic shows defense of the continental United States (CONUS) by Navy ships outfitted with a Block IIA-like interceptor.

SOURCE: HICKS 2005.

similarly vulnerable to midcourse countermeasures such as lookalike decoys (Sessler et al. 2000) against which neither system has been tested (DOT&E 2015). Despite the system's weaknesses, such a large deployment of strategic-capable interceptors cannot be overlooked by China or Russia.

How Russia and China Are Likely to Respond

In short, these plans call for the United States to have the capability to deploy, on a short time scale, hundreds of strategicall capable interceptors. This interceptor inventory is comparable to the total number of ICBMs fielded by Russia and China. Russia fields around 312; China around 60 (Patton, Podvig, and Schell 2013).

Thus, the Block IIA deployments will make arms control vastly more difficult. The 2010 New START Treaty, which limits US and Russian strategic nuclear weapons, is unlikely to survive in such an environment. Russia has made it clear that further cuts to its offensive nuclear weapons would require limits on US missile defenses. Additionally, Russia and China have already started responding to the United States' thus-far modest BMD deployments by developing new strategic delivery systems that can evade or overwhelm defenses, such as Russian nuclear-armed drone submarines and China's addition of multiple warheads to its large ballistic missiles.

As James Miller, a former undersecretary of defense for policy during the Obama administration, has noted, the objective "to bring the SM-3 IIA missile into the national defense architecture . . . means that China and Russia must expect the United States by 2025–2030 to have many hundreds of available interceptors for national missile defense." He warned, "We should expect the Chinese nuclear arsenal to grow substantially and Russia to resist reductions below the 2010 New Strategic Arms Reduction Treaty—and to prepare seriously to break out" (Reif 2019).

Congress has a critical role in avoiding this outcome. A first step would be rescinding its mandate in the 2018 National Defense Authorization Act to test the Block IIA interceptor against an ICBM by December 2020, allowing the Missile Defense Agency to cancel its test plans.

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