US nuclear safety claim is a 'dangerous fantasy': study

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In April 2010, the US government adopted a new nuclear strategy that depends on the conclusion that the current missile defense systems will reliably protect the continental United States in the extreme circumstances of nuclear-armed combat. Now research in the *Bulletin of Atomic Scientists*, published by SAGE, shows that these defenses have not been tested against real-world threats and would not be effective in real combat conditions.

The April 2010 strategy relies on assumptions that the current US Ground-Based Missile Defense (GMD) and Standard Missile 3 (SM-3) systems will be reliable and robust in nuclear-armed combat. This strategy also asserts that the GMD system is currently protecting the continental United States from long-range nuclear-armed ballistic missiles that might be launched in the future from countries such as Iran and North Korea. Making matters worse, the authors write, are the recent Iranian ballistic missile tests that indicate Iran is developing effective countermeasures that would defeat these US missile defenses. The authors conclude that the new US nuclear strategy is based on an alarming "technical myth" that GMD and SM-3 systems are proven and effective.

In their paper, How US strategic antimissile defense could be made to work, George Lewis and Theodore Postol argue that the US should replace the ineffective, untested, and unworkable GMD system with a defense that could reliably intercept Iranian and North Korean long-range ballistic missiles before they reach the United States, Northern and

Western Europe, and Northern Russia. The alternative defense would use stealth drones carrying specialized fast interceptors to take down the nuclear-armed long-range ballistic missiles while they are still in powered flight and before they can deploy effective countermeasures.

Since a drone-based system would use a relatively small number of interceptors, it would not threaten Russia's strategic nuclear forces in a manner that would create policy concerns relating to New START or other future arms reduction agreements. (New START is a treaty signed earlier this year by President Barack Obama and Russian President Dmitry Medvedev limiting nuclear weapons. Both countries will be limited to 1,550 ready-to-use, long-range nuclear weapons in addition to the other parts of their nuclear stockpile.)

The current GMD and SM-3 systems have fundamental flaws determined by the laws of physics that cannot be overcome, based on technology they both share. These flaws relate to their ability to accurately target the correct part of the target missile in flight. Newly developed Iranian missiles without tail fins, or warheads attached to rocket bodies that tumble end over end, like those that defeated the Patriot Missile Defense in the Gulf War of 1991, would easily beat these interceptors before they could locate, maneuver, and hit the nuclear warhead. Decoys deployed in the near vacuum of space would also defeat the defense. These decoys will travel along with warheads because there is no air-drag to cause them to slow down. Since the defense would not be able to identify the warheads among the decoys, it would not know how to aim its interceptors.

The Defense Department's strategy relies on these nuclear defense systems performing to near perfection, even when confronted by the overwhelming complexities and uncertainties of real combat against nuclear-armed ballistic missiles. The authors are concerned that the Defense Department has shown no test-based evidence that these

defense systems can ever work in combat, yet claims that the continental United States is already defended from missile attack, and that these systems are also an effective deterrent that can offset cuts to nuclear-strike forces.

"These claims are fantastical, audacious, and dangerous," says Lewis.

The proposed alternative, based on unmanned drones, would not require new technologies or science, the authors say. It would be designed only to target long-range missile threats, replacing the GMD and SM-3 defense systems. "The situation is urgent, as Iran is already demonstrating countermeasures in flight tests that would render both the GMD and SM-3 long-range missile defense systems ineffective," Lewis says.

"If we, as a nation, refuse to confront the fact that our chosen defense system is not reliable, and if we fail to build a robust and reliable alternative system using existing technology, we will have only ourselves to blame if the continental United States suffers a catastrophe as a result of the successful delivery of a nuclear weapon by long-range ballistic missile."

More information: How US strategic antimissile defense could be made to work by George N. Lewis and Theodore A. Postol is published today (1st November, 2010) in the *Bulletin of the Atomic Scientists* issue 2010 66 (6); DOI:10.1177/0096340210387503

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