Hypersonic Weapons: Are We Entering a New Era of Vulnerability?

By

Brandon Toliver

The advent of hypersonic weapons, with their unparalleled speed and maneuverability, ignited a global debate about the future of strategic security. Some argue these weapons unwittingly ushered in an era where traditional defenses are rendered obsolete, leaving nations exposed to swift and devastating attacks. The emergence of hypersonic glide vehicles (HGV) and hypersonic cruise missiles (HCM) prompts a fundamental reassessment of assumptions about deterrence and defense.

Hypersonic weapons, capable of exceeding Mach 5 with unpredictable flight paths, shatter the bedrock principles of conventional missile defense. Their ability to glide and maneuver within the atmosphere allows them to evade radar detection and interceptor systems, compressing warning times to mere minutes. This drastic reduction in reaction time amplifies the risk of miscalculations and accidental escalation, particularly in moments of crisis.

The global balance of power is being fundamentally altered, not merely adjusted, by the aggressive pursuit of maneuverable hypersonic weapon capabilities. China's DF-17 hypersonic missile, coupled with its reported testing of a fractional orbital bombardment system (FOBS) with a hypersonic payload, demonstrates a clear intent to achieve global strike capabilities with minimal warning. Russia's deployment of the Avangard HGV on its SS-19 intercontinental ballistic missiles and the operational status of the Zircon hypersonic anti-ship missile further highlight the growing proliferation of these advanced weapons. North Korea's claim of successful hypersonic missile tests, while requiring verification, signal a potential integration of these weapons into its theater nuclear strategy, adding another layer of complexity to regional security.

The inherent capacity of maneuverable hypersonic weapons to render existing missile defense systems obsolete signifies not just a technological leap, but a deliberate dismantling of established strategic certainties. The unpredictability of their flight paths and the compression of warning times do not just complicate defense planning; they erode the very foundation of strategic stability, where deterrence relies on the certainty of retaliation. The potential for these weapons to carry both conventional and nuclear payloads does not just increase their versatility; it blurs the lines between conventional and nuclear conflict, creating a perilous ambiguity that heightens the risk of miscalculation.

The ability to strike targets with minimal warning does not just enhance offensive capabilities; it creates a coercive tool, enabling states to exert pressure and achieve strategic objectives without resorting to large-scale conventional warfare. The potential for hypersonic weapons to be deployed in a first-strike role does not just raise concerns about escalation; it fundamentally alters the calculus of deterrence, where the threat of retaliation may no longer be sufficient to prevent aggression.

To counter this burgeoning vulnerability, the United States must not merely react, but fundamentally redefine its strategic posture, acknowledging that piecemeal technological solutions are insufficient to address the profound shift hypersonic weapons impose on the security landscape. The rapid development of the glide phase interceptor (GPI) and space-based tracking systems is not just about enhancing missile defense; it is about restoring a sense of

strategic stability, reassuring allies and deterring potential adversaries. The expansion of conventional hypersonic programs, such as the AGM-183 ARRW, conventional prompt strike, and the long-range hypersonic weapon, is not just about developing counterforce capabilities; it is about demonstrating a commitment to maintaining a credible deterrent, signaling to potential adversaries that aggression will be met with a swift and decisive response. The integration of hypersonic weapons into existing military doctrines does not just require tactical adjustments; it demands a fundamental reevaluation of strategic thinking, adapting to a new era of high-speed warfare.

The international community's response to hypersonic weapons must not be limited to national defense initiatives; it must include a concerted effort to promote arms control and transparency. The absence of clear international norms and regulations regarding hypersonic weapons does not just create uncertainty; it fosters a climate of strategic competition, where states are incentivized to develop and deploy these weapons without restraint. The development of transparency and confidence-building measures is not just about reducing the risk of miscalculation; it is about building a foundation for strategic stability, where states can engage in dialogue and cooperation to mitigate the risks posed by these advanced weapons.

Hypersonic weapons represent a paradigm shift in military technology, fundamentally questioning if the world is entering a new era of vulnerability, undermining the foundations of traditional missile defense and reshaping the strategic landscape. Addressing this challenge requires a comprehensive approach that combines technological innovation, strategic adaptation, and international cooperation. Only through a concerted effort can the international community hope to mitigate the risks posed by hypersonic weapons and ensure a more stable and secure future.

Brandon Toliver, PhD, serves on the A4 staff of Headquarters Air Force. The views expressed are those of the author and do not reflect the official guidance or position of the United States government, the Department of Defense, the United States Air Force, or the United States Space Force.