

Air and Missile Defense in an Anti-Access/Area Denial environment

By Col. Gary Beard

With the rise of multiple competitors to U.S. influence across the globe, the likelihood of military operations within an anti-access/area denial (A2/AD) environment poses a significant challenge to U.S. security and U.S. military forces.¹ The most likely challengers to U.S. military capabilities are Russia and China, nations that possess powerful military forces that provide a formidable foe to U.S. joint forces. The U.S. and partner nations face an evolving and expanding array of air threats, in both capability and capacity. Given the likelihood that U.S. air superiority throughout an operation cannot be guaranteed, a holistic approach to air and missile defense is required to provide freedom of action to combat forces. The U.S. must train, equip, and organize air and missile defense (AMD) forces ready to operate effectively within the multi-domain operational framework to deploy, fight, and win against any adversary, at any time, in a complex, multi-domain environment.²

To defeat this threat, the U.S. military must maintain forces capable of acting against all enemies and the full range of threats these adversaries may use.³ The ability to defend forces from air threats is a requirement for forces

to “develop a lethal, agile, and resilient force posture and employment” as directed in the National Defense Strategy (NDS).⁴ The National Security Strategy (NSS) advises that, “Allies and partners are a great strength of the United States. They add directly to U.S. political, economic, military, intelligence and other capabilities.”⁵ No matter where the U.S. goes, the joint force will fight alongside like-minded nations to strengthen U.S. interests and to deter or defeat adversaries. Both China and Russia are specifically noted in the NSS and NDS as nations that have increased military capabilities to marginalize U.S. influence within their respective regions.⁶ U.S. ground maneuver forces must prepare to meet these threats, regardless of location or enemy.

The elimination of active duty Army maneuver AMD forces in 2006 provided the Soldiers needed to grow additional maneuver forces during operations in Afghanistan and Iraq. The lack of air threat meant this decision was an acceptable risk to an Army that

needed to grow additional maneuver structure. However, the battlefield the joint force faces today and in the future has drastically changed. This change necessitates a review of how the Army defends the modern maneuver force against air and missile threats and the level of risk that maneuver units face. Full evaluation of the threat, and potential options to mitigate risk, are critical for the Army to achieve success as part of future joint forces operating in future conflict.

Lt. Gen. H. R. McMaster, while the director of the Army Capabilities Integration Command, said “There are basically two ways to fight the U.S.: asymmetrically and stupid.”⁷ While the U.S. assumes no enemy intends to fight “stupid,” the continual adaptation of competitors means symmetric threats to the U.S. military and allies continue to grow. By evaluating how conflict could unfold, and the associated threats faced, it is easier to understand capabilities required to defend joint and international forces. It is unlikely maneuver forces can successful-

A Chengdu J-20 stealth fighter performs a flyby during the opening of Airshow China in Zhuhai, China, Nov. 1, 2016. (Alert5/Wikimedia)



1 Stephen Biddle and Ivan Oelrich, “Future Warfare in the Western Pacific,” *International Security*, Vol. 41, No. 1 (Summer 2016): 7, https://www.mitpressjournals.org/doi/full/10.1162/ISEC_a_00249 (Accessed 19 Jan 2018). A2/AD is a two-part strategy employed to deter or defeat an adversary. The enemy seeks to deny an opposing force the ability to enter a region to initiate operations and to further deny the enemy use of an area once in theater.

2 US Army Space and Missile Defense Command, *Army Air and Missile Defense 2028 Fact Sheet* (Huntsville, AL: USASMD, 29 Mar 2019), https://www.smdc.army.mil/Portals/38/Documents/Publications/Fact_Sheets/Army_AMD_2028.pdf (Accessed 31 Mar 2019).

3 Donald J. Trump, *National Security Strategy* (Washington, DC: The White House, 18 Dec 2017), 29, <https://www.whitehouse.gov/wp-content/uploads/2017/12/NSS-Final-12-18-2017-0905.pdf> (Accessed 20 Jan 2018).

4 Jim Mattis, *Summary of the 2018 National Defense Strategy of the United States of America*, (Washington, DC: The Defense Department, 19 Jan 2018), 7, <https://www.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf> (Assessed 19 Jan 2018).

5 Trump, *National Security Strategy*, 37.

6 Trump, *National Security Strategy*, 2: 46-48 and Mattis, *Summary of 2018 National Defense Strategy*, 1.

7 Allison Schrager, “The Four Fallacies of Warfare, According to Donald Trump’s new National Security Advisor,” *Quartz Media Online*, <https://qz.com/915438/the-four-fallacies-of-warfare-according-to-national-security-advisor-hr-mcmaster/> (Accessed 24 Jan 2018).



Paratroopers of C Company, 2nd Battalion, 503rd Infantry Regiment, 173rd Airborne Brigade Combat Team (ABCT) provide security during the deployment of a Terminal High Altitude Area Defense (THAAD) to Naval Support Facility Deveselu, Romania, May 15, 2019. The 173rd ABCT Security Force is responsible for the security of the longest land convoy outside of the continental U.S. for the THAAD asset.

ly operate on the future battlefield without effectively managing threats from the air domain through effective force and technology management. As such, the Army must organize the force structure to employ AMD forces capable of operating in defense of the joint maneuver force.

Nations competing with U.S. capabilities and influence continue to evolve and adapt to the future battlefield. To close the military gap with the U.S., adversarial militaries engage in a continual cycle of improving strategy and technology. These military competitors use a variety of air threats, including fixed and rotary wing aircraft, unmanned aerial

systems (UAS), rockets/artillery/mortars (RAM), and cruise missiles. These threats shape the future battlefield, threats the U.S. must effectively counter to ensure the future of U.S. military might and power projection capabilities.

How A2/AD impacts the fight

Adversaries to U.S. influence have increasingly developed capabilities and doctrine to offset U.S. military power. Both China and Russia employ A2/AD in disputed regions to show strength and limit U.S. options.⁸ This method of warfighting makes use of military assets and capabilities to gain control of an area while ensuring the adversary is

unable to do so. The primary mechanisms of doing so include preventing access and disrupting operations in a given area.⁹ Russia and China have made significant investments in integrated air defense systems, guided missiles, anti-satellite weapons, electronic warfare systems and other capabilities such as cruise missiles and UAS that can be used at increasing ranges to interdict U.S. forces.¹⁰

As stated in the Joint Integrated Air and Missile Defense Vision 2020, “the future [Integrated Air and Missile Defense] environment will be characterized by a full spectrum of air and missile threats...with precision targeting.”¹¹ The possibility of an adver-

⁸ Zach Berger, “China’s Anti-Access Area Denial,” *Missile Defense Advocacy Alliance*, July 2016, <http://missiledefenseadvocacy.org/missile-threat-and-proliferation/todays-missile-threat/china-anti-access-area-denial-coming-soon/> (Accessed 24 Jan 2018).

⁹ Nathan Freier, “The Emerging Anti-Access/Area-Denial Challenge,” *Center for Strategic and International Studies Online*, May 27, 2012, <https://www.csis.org/analysis/emerging-anti-access-area-denial-challenge> (Accessed 19 Jan 2018).

¹⁰ Mark Gunzinger, et al, *Force Planning for the Era of Great Power Competition*, (Washington, DC: CSBA, 2017), 18.

¹¹ Geoffrey Weiss, “Seeing 2020, America’s New Vision for Integrated Air and Missile Defense” *Joint Force Quarterly* 76, (1st Quarter 2015): 109, <http://ndupress.ndu.edu/Media/News/News-Article-View/Article/577599/jfq-76-seeing-2020-americas-new-vision-for-integrated-air-and-missile-defense/> (Accessed 19 Nov 2017).

sary targeting U.S. forces from the air with weapon systems demonstrates why maneuver short range air defense (MSHORAD) is needed. When “ground and maritime forces can be held at risk by sheer numbers of cheap, long-range rockets” and other threats, the need to incorporate robust AMD capabilities becomes more apparent.

In order to defeat an enemy operating an A2/AD strategy, U.S. forces must operate faster than the enemy’s decision cycle, taking action against a variety of threats before the enemy is able to influence our operations.¹² Threats from airborne platforms, which typically have speed, maneuverability, and weapons’ range advantages over a ground-based force place U.S. forces at significant disadvantage, reducing the ability of commanders to operate within the enemy decision cycle.

Such threats form the key enabling capability of current U.S. competitors. Both China and Russia have improved their ability to use the full spectrum of air and missile threats to impact ground and naval forces. The ability to use UAS to provide reconnaissance and targeting data will enhance the enemy’s situational understanding of the future battlefield, enabling better use of their attack aviation platforms, cruise missiles and artillery. Current U.S. and allied forces also risk being overwhelmed by the complexity and volume of air and missile attacks against our formations, further degrading our freedom of maneuver in an A2/AD environment.¹³

Multi-domain battle

The concept of multi-domain battle (MDB) forms the operational concept for how to defeat aggressors to U.S. influence and

military might. Given that maneuver operations are the key to MDB operations, the joint force must be “capable of outmaneuvering adversaries physically and cognitively through the extension of combined arms across all domains.”¹⁴ It is no longer enough that U.S. military forces have the greatest land forces in conflict, those capabilities must be appropriately paired with the complimentary capability and capacity to operate within all domains, while simultaneously preventing the enemy from doing the same. As then-Chairman of the Joint Chiefs of Staff Gen. Martin Dempsey said in 2013, joint force commanders “will always rely on... [AMD] to survive air and missile attacks.”¹⁵

Growing threats from the air domain make effective AMD critical to allowing the joint force of the future to operate within the MDB construct. Chief of Staff of the Army Mark Miley said, “On the future battlefield, if you stay in one place longer than two or three hours, you will be dead.”¹⁶ In order to operate at that speed, maneuver forces must bring AMD capabilities with them to the battlefield.¹⁷

The U.S. can no longer only emplace in relatively static locations and provide air and missile defense capabilities from behind our forces, as our current Patriot and THAAD systems primarily operate. Nor can we provide adequate protection in platforms such as the Avenger that are incapable of keeping pace with our maneuvering forces and without sufficient protection for the Soldiers that operate them.¹⁸ Future AMD forces have to possess the mobility, firepower, protection and communications necessary to integrate and operate alongside maneuvering forces.

Conclusion

The complexities of the future operational environment and the need to overcome adversarial advances in technology, employment and capacity require materiel solutions and effective organization, training and doctrine for its employment. However, the U.S. Army currently has both a capability and a capacity shortage to counter the threats future competitors will certainly use. Developing and fielding forces to counter the threats of the future operating environment is critical to future success in combat operations.

Acquiring new detection and engagement systems designed to protect forces from a full array of air threats, including UAS, cruise missiles, rockets, artillery and mortars, and manned air platforms, is the only means to effectively protect maneuver forces on the future battlefield. These systems must be trained and task-organized to provide AMD for the joint maneuver force, the cornerstone of U.S. operational approaches in an A2/AD environment.

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¹² Tyler Rogoway, “America’s Startling Short Range Air Defense Gap and How to Close it Fast,” <http://www.thedrive.com/the-war-zone/13284/americas-gaping-short-range-air-defense-gap-and-why-it-has-to-be-closed-immediately> (Accessed 2 Nov 2017).

¹³ Thomas Karako and Wes Rumbaugh, *Distributed Defense*, (Lanham, MA: Rowman & Littlefield, 2018), 1.

¹⁴ *Ibid.*, 1.

¹⁵ U.S. Joint Chiefs of Staff, *Joint Integrated Air and Missile Defense: Vision 2020*, (Washington, DC: U.S. Joint Chiefs of Staff, 5 Dec 2013), 3, <http://www.jcs.mil/Portals/36/Documents/Publications/JointIAMDVision2020.pdf> (Accessed 19 Nov 2017).

¹⁶ Sydney J. Freedberg, Jr., “Army Races to Rebuild Short-Range Air Defense: New Lasers, Vehicles, Units,” *Breaking Defense Online*, 21 Feb 2017, <https://breakingdefense.com/2017/02/army-races-to-rebuild-short-range-air-defense-new-lasers-vehicles-units/> (Accessed 2 Feb 2018).

¹⁷ William Dries, “Some New, Some Old, All Necessary,” *War on the Rocks Online*, 27 Mar 2017, <https://warontherocks.com/2017/03/some-new-some-old-all-necessary-the-multi-domain-impertative/> (Accessed 2 Feb 2018).

¹⁸ Sebastien Roblin, “Is the U.S. Army Getting Ready to Bring Back the ‘Linebacker?’” *National Interest Online*, 21 Jan 2018, <http://nationalinterest.org/blog/the-buzz/the-us-army-getting-ready-bring-back-the-linebacker-24146> (Accessed 21 Jan 2018).