The recently published revision to Joint Publication (JP) 3-01, “Countering Air and Missile Threats,” dated April 21, 2017, updates joint doctrine in an area of increased vital interest to the United States. Doctrine for countering air and missile threats is a complex combination of many elements throughout the planning and execution phases including the air defense and ballistic missile defense (BMD) mission areas; tactical, operational and strategic levels of warfare; and offensive and defensive mission aspects. When an increasing number of countries can threaten the U.S. and its allies with air and missile capabilities, effective integration of our resources becomes more important than ever. The following contextual description is extracted from JP 3-01:

“The strategic environment is uncertain, complex and changes rapidly. While the basic character of war has not changed, the character of conflict has evolved. The military environment and the threats it presents are increasingly trans-regional, multi-domain and multi-functional (TMM) in nature. TMM will cut across multiple combatant commands (CCMDs), across land, sea, air, space and cyberspace. The strategic environment is fluid, with changing alliances, partnerships and national and transnational threats that rapidly emerge, disaggregate and reemerge. These factors will significantly affect how the joint force conducts counter air and missile threat operations. Despite our best planning and the application of sound intelligence combined with the other joint functions, we can expect uncertainty and ambiguity to exist in strategic and operational environments … The proliferation of weapons of mass destruction, coupled with means of delivery, greatly increases the potential lethality of any adversary and elevates the importance of maintaining robust capabilities to protect U.S. and friendly forces and areas.”

This article summarizes the history, evolution, basic elements and implications of JP 3-01 while focusing on its two central frameworks: Counter-air and integrated air and missile defense (IAMD).

In reference to JP 3-01, Brig. Gen. Clement Coward, Joint Staff J8 deputy director for force protection and Joint Integrated Air and Missile Defense Organization director stated, “The release of JP 3-01 represents a major step forward in articulation of joint doctrine for air and missile defense. The days of stovepiped air and missile defense capabilities and procedures within services, individual combatant commands, regions and phases are over. In this era of increased attention on air and missile threats, it’s crucial that U.S. forces be integrated for maximum effectiveness. JP 3-01’s expanded articulation of counter-air, which has been a foundational doctrine for many years, and IAMD, which is a new approach, clarifies confusion that has existed for years.”

Counter-air

Counter-air has long been a foundational part of joint doctrine. The 1999 edition of JP 3-01 addressed doctrine for countering air and missile threats primarily within the context of air superiority against fixed-wing (e.g., fighters) and aerodynamic missile threats (e.g., cruise missiles). Ballistic missiles (BM), while addressed, were clearly

In the 2007 revision, the four supporting joint publications were merged into an all-encompassing JP 3-01. This consolidated version of JP 3-01 included a revised counter-air framework. The framework and supporting text addressed the two primary pillars, offensive and defensive counter-air (OCA and DCA), and their associated elements. OCA was defined as “offensive operations to destroy or neutralize enemy aircraft, missiles, launch platforms and their supporting systems both before and after launch and as close to the source as possible.”

OCA consists of attack operations, suppression of enemy air defenses (SEAD), fighter escort and fighter sweep. DCA is defined as “all defensive measures designed to neutralize or destroy enemy forces attempting to penetrate or attack through enemy airspace.” Further description tells us DCA consists of two major subcategories: active and passive air and missile defense.

The 2012 revision to JP 3-01 made changes to the counter-air definition and framework to better enable them to encompass the full scope of countering air and missile threats and to support IAMD, which will be discussed later. In the first change, the term “protection” was added in the definition to clarify the fact that counter-air addressed all categories of theater air and missile threats, including ballistic missiles, viewed by many as not ade-
quately countered by air superiority alone.

The second change in 2012 replaced missile defense (MD) with BMD as one of the two components of active air and missile defense (AMD) within the counter-air framework as shown in Figure 1. This change eliminated the previous duplication between the AD and MD subcategories, both of which included aerodynamic missiles. Explicitly separating ballistic missiles from all other air threats enabled better recognition of the many clear operational differences between the two. Also, in conjunction with the addition of protection to the definition of counter-air, this change emphasized that counter-air doctrine encompassed the full theater threat spectrum including the ballistic threat. This was also important in the greater context of IAMD because it made clear that counter-air required no augmentation within the theater. The counter-air framework has remained unchanged since 2012.

In 2017, the term “control of the air” replaced “air superiority” within the counter-air definition, the latter being redefined as a degree of control. In most cases air superiority, which permits the conduct of operations at a given point in time and place without prohibitive interference from air and missile threats, remains the goal. However, the degrees can range from no control to parity, local air superiority and air supremacy. This change was consistent with previous changes to JP 3-52 “Joint Airspace Control,” and when added to the previously mentioned inclusion of “protection,” resulted in the following updated definition of counter-air, “A mission that integrates offensive and defensive operations to attain and maintain a desired degree of control of the air and protection by neutralizing or destroying enemy aircraft and missiles, both before and after launch.” Within that definition, it is important to recognize the significance of both the defensive and offensive dimensions. In what is commonly referred to as the “Eight-Star Memo” to the secretary of defense (dated Nov. 5, 2014), the chief of staff of the Army and chief of naval operations stress the fact that “playing catch” is not enough and there must be a strong offensive element in support of the defense. Counter-air is the foundational structure at the theater level for both. Its joint and interdependent nature enables each component of the joint force to contribute capabilities necessary for mission success. In addition, counter-air’s vital tenets of centralized planning and direction and decentralized execution optimize offensive and defensive capabilities.

Integrated air and missile defense

The notion of integrated air and missile defense first came into existence in the 2001 time-frame with the secretary of defense’s decision to merge theater and national missile defense (NMD) into a single missile defense entity. While this decision helped enable withdrawal from the Anti-Ballistic Missile Treaty, it also complicated the air and missile defense architecture. In 1996, the Joint Theater Air and Missile Defense Organization was created as a chairman’s controlled activity under the joint staff J-8 to manage the theater piece, while the North American Aerospace Defense Command retained responsibility for homeland AD. NMD was still in its developmental stages. Following the merger of missions, what had been rather clean lines of separation between theater and homeland air and missile defense disappeared and the missions were now one. The question was how to effect the merger.

To address this broader focus, JTAMDO was renamed the Joint Integrated Air and Missile Defense Organization. In 2004,
IAMD was officially defined in the IAMD Joint Integrating Concept as follows, “The [integration of] capabilities and overlapping operations to defend the homeland and U.S. national interests, protect the Joint Force, and enable freedom of action by negating an adversary’s ability to achieve adverse effects from their air and missile capabilities.”

The definition of IAMD included both capability and operational dimensions. While much attention has been given to the acquisition of needed capabilities, it is also important to develop concepts, architecture and doctrine for the operational aspects as embodied in, for example, concepts of operations (CONOPS) and joint publications. This remains the Department of Defense dictionary definition to this day.

The first attempt at defining the MD aspects of IAMD was the Integrated Missile Defense (IMD) CONOPS Baseline 2004. Developed by JIAMDO, this document emphasized the need for continued decentralized execution of MD at the theater level and below while also advocating for a centralized global MD planning role for United States Strategic Communications. This role was later codified in Unified Command Plan (UCP) 2002 Change 2 and has remained relatively unchanged through the current UCP.

JIAMDO subsequently developed the 2008 IAMD Operational Concept, approved by the Joint Requirements Oversight Council, to address the full scope of IAMD operationally, including theater, cross-areas of responsibility (AOR), and homeland perspectives (see Figure 2). This concept focused on three basic tenets: prevent, defeat and minimize. These essentially equated to offensive counter-air attack operations, active defense and passive defense. This concept was further elaborated upon in the adoption of the counter-air framework at the theater level; specifically focusing on active and passive DCA and OCA attack operations. The concept also reaffirmed the role for a synchronizer for the global (cross area of responsibility) planning environment. It should be noted that 10 years later, the basic IAMD tenets espoused in this operational concept are now what are largely reflected in the 2017 edition of JP 3-01.

In the 2009-2012 timeframe, initial steps were taken to incorporate IAMD into joint doctrine, starting with JP 3-01. Using principles espoused in the IAMD Operational Concept and resultant extant practices subsequently adopted by the CCMDs, JP 3-01 codified the original IAMD definition and elaborated upon it with the following descriptive text, “IAMD is an evolving approach that uses the counter-air framework at the theater level ... [and] emphasizes the integration of offensive counter-air attack operations, DCA operations, and other capabilities as required to create the joint force commander’s desired effects.”

Note that IAMD was couched as an “evolving approach” and not a mission similar to counter-air. As an approach, IAMD was regarded as a generalized, overarching umbrella structure integrating both capabilities and overlapping operations or missions including counter-air, global missile defense, homeland defense (HD) and global strike. The details of this were not addressed in any detail until 2017.

In the 2012 edition, JP 3-01 also elaborated on the global and homeland dimensions of IAMD. Specifically, it stated, “The IAMD approach encompasses global strike and global missile defense beyond the theater level ... [with USSTRATCOM] ... responsible for synchronizing planning for global missile defense.”

This wording reflected the UCP, which, as mentioned, designated USSTRATCOM as the global synchronizer for global missile defense.
MD planning. While the UCP did not specify global MD as being exclusively BMD, the 2012 edition of JP 3-01 specifically articulated the understanding that BMD was the extant focus of USSTRATCOM’s global synchronizer role. This was consistent with USSTRATCOM’s 2010 Global Missile Defense CONOPS, the charter for USSTRATCOM’s Joint Functional Component Command for Integrated Missile Defense (JFCC IMD), and Chairman Joint Chiefs of Staff Instructions 3295.01, “Policy Guidance for Global Ballistic Missile Defense.”

**2017 edition of JP 3-01**

While the 2012 revision of JP 3-01 made some important inroads for IAMD, it quickly became apparent that IAMD needed additional elaboration in several areas. Most important was the need to clarify IAMD’s relationship with counter-air. Other related areas needing clarification included the meaning of IAMD as an approach; how IAMD used the counter-air framework; IAMD’s relationship to global MD; HD, global strike and counter-rocket, artillery and mortar (C-RAM); and conflicting terminology. Questions concerning these issues caused many erroneous interpretations over the years, including the erroneous view that counter-air and IAMD were somehow each subsets of the other.

The core principles related to countering air and missile threats remain unchanged across the many editions of JP 3-01. These principles include unity of command, centralized planning and direction and decentralized execution. Clear command and support relationships and assigned responsibilities remain central to conducting effective and efficient operations within and across theater boundaries.

While the 2017 edition of JP 3-01 reaffirmed the original approved definition of IAMD as previously discussed, it modified the IAMD description as follows, “IAMD is an approach that synchronizes aspects of counter-air with global missile defense: homeland defense; global strike; and counter rocket, artillery and mortar.”

This text reaffirmed IAMD as an approach and not a mission. It also introduced some needed specificity concerning the breadth and focus of IAMD. Note the following text that addresses the overlapping and distinct elements of counter-air and IAMD:

- **Areas of counter-air / IAMD overlap**
  - “Within a theater, IAMD is primarily focused on DCA. IAMD is also directly supported by OCA attack operations missions providing protection for U.S. and allied forces/assets (e.g., attacks against enemy BMs and their associated infrastructure).”
  - “While OCA attack operations against IAMD-related targets may require

- **Areas unique to counter-air**
  - “OCA attack operations also include missions contributing to air superiority (e.g., attacks against enemy fighter airfields) which are outside of IAMD.”
  - “While OCA attack operations against IAMD-related targets may require

A long-range ground-based interceptor is launched from Vandenberg Air Force Base, Calif., and performs as planned, successfully demonstrating performance of alternate divert thrusters for the system’s Exo-atmospheric Kill Vehicle. This test, designated as Ground-based Midcourse Defense Controlled Test Vehicle-02+, was a planned non-intercept flight test. Data from this test will be used to improve the Ground-based Midcourse Defense element of the nation’s Ballistic Missile Defense System. (U.S. Dept. of Defense)
the support provided by SEAD, fighter escort and fighter sweep, these elements of OCA are considered outside of IAMD.”

- Areas unique to IAMD
  - “Beyond the theater level IAMD emphasizes the integration of these counter-air operations [DCA and OCA attack operations] with global MD, homeland defense and global strike.”
  - “IAMD also includes counter-rocket, artillery and mortar.”

Summarizing these quotes, the common elements of counter-air and IAMD, generally speaking, are those actions that directly support the area air defense commander’s (AADC’s) objectives at theater level. DCA fits this criterion, as do aspects of OCA attack operations (e.g., attacks against enemy transporter erector launchers, which would most likely be nominated as targets by the AADC). On the other hand, unique elements of counter-air are offensive actions that do not directly support or involve the AADC. These could include actions such as engagements of aerial targets of opportunity over enemy territory, suppression of enemy air defense units, fighter escort missions, or as cited in the text, attack operations against enemy fighter airfields. While arguments can be made that these sorts of actions indirectly support the AADC, JP 3-01 considers them tangential and therefore unique to counter-air and not within the IAMD umbrella. Related to this idea, it is important to understand that not every engagement against an air and missile threat falls under the category of IAMD.

IAMD focuses on the integration of IAMD-related counter-air operations with elements outside the normal theater level, including global MD, homeland defense, global strike and C-RAM. These are discussed in the following paragraphs.

Global MD is described in JP 3-01 as, “MD operations, activities and actions that affect more than one GCC and require planning synchronization among the affected commands…”

Global MD is described in JP 3-01 as, “MD operations, activities and actions that affect more than one GCC and require planning synchronization among the affected commands…”

This text is consistent with the global MD CONOPS published by USSTRATCOM in 2016. Of note in this description is the expansion of global MD’s scope to include essentially all MD actions requiring synchronization. This aspect expands the previous BMD focus espoused in 2012 to include threats such as long-range cruise missiles crossing AOR boundaries. However, while expanding global MD beyond BMD, the 2017 JP 3-01 reflects the fact that extant practice of USSTRATCOM’s planning synchronization role is still primarily BMD-focused.

In the context of IAMD, the focus of global MD remains planning, not execution. Note the following, “IAMD uses the global MD planning construct to balance the MD needs at the CCDR level with the broader global MD needs including homeland defense. Global MD focuses on a collaborative planning process among CCDRs orchestrated/synchronized by [commander of] USSTRATCOM.”

USSTRATCOM, in synchronizing global MD planning, executes the following core responsibilities:
- Chairs the Missile Defense Global Synchronization Board. This board is “chartered to resolve issues related to global MD plans, operational planning guidance or policy, plans assessment and global force management (GFM).”
- Assists in the global synchronization of MD plans. In doing so, USSTRATCOM “maintains global situational awareness, performs globally-focused cross-AOR analysis, and develops inputs, recommendations and assessments.”
- Conducts missile defense global force management. USSTRATCOM, acting as the MD joint functional manager, “identifies, develops and recommends globally optimized sourcing solutions…”
- Support for homeland defense is another critical aspect of countering air and missile threats. Defense of the homeland, while using counter-air, is recognized in JP 3-01 as also encompassing aspects that are distinct from standard counter-air doctrine. These include the unique NORAD/NORTHCOM missions, Operation Noble Eagle and defense against the long-range ballistic missile threat including missile warning and attack assessment. JP 3-01 specifies that, while not a foundational part of counter-air, these unique aspects are incorporated under the IAMD umbrella. Details of these aspects are further addressed in JP 3-27, “Homeland Defense.”

Global strike is described consistent with the definition in JP 3-0, “Joint Operations” as, “The capability to rapidly plan and deliver extended-range attacks, limited in duration and scope, to create precision effects against enemy assets in support of national and theater commander objectives”.

The responsibility for planning global strike belongs to the commander of USSTRATCOM, who executes this task in full coordination with affected combatant commanders. JP 3-01 further emphasizes the integration of counter-air with aspects of global strike that are beyond the theater level.

JP 3-01 clarifies that global strike is not “encompassed” by IAMD as was previously described in the 2012 JP 3-01. Rather, IAMD only includes aspects of global strike that support air and missile related target sets. This recognizes that the bulk of global strike missions, which support such actions as OCA attack operations and interdiction missions, are outside of IAMD.

C-RAM is the last element integrated within IAMD and is described by the following extracts:
- “C-RAM is a tactical mission that provides detection, warning, C2 and intercept of RAM in flight and engagement of enemy sources of IDF [indirect fire]. C-RAM is generally the responsibility of the ground commander to plan and execute.”
- “C2 for C-RAM operations is normally the responsibility of the local base defense operations center or the tactical operations center. C-RAM units receive and provide situational awareness to and from airspace users to ensure friendly protection. Units that perform the C-RAM mission are normally air defense units, but are not generally considered part of the centralized joint AMD network.”
- Following are some terminology clarifications in the 2017 edition of JP 3-01 worth noting:
  - AD: “Defensive measures designed to destroy attacking enemy aircraft or aerodynamic missiles, or to nullify or reduce the effectiveness of such attack.” It is important to note that AD does not include BMD but does include defense against aerodynamic missiles (e.g., cruise missiles).
  - MD: Defensive measures designed to destroy attacking enemy missiles, or to nullify or reduce effectiveness of such attack.” MD includes defense against all types of missiles (aerodynamic and ballistic). However MD is not limited to defense using missiles.
  - Air and missile defense, “Di-
rect [active and passive] defensive actions taken to destroy, nullify or reduce the effectiveness of hostile air and ballistic missile threats against friendly forces and assets.” AMD is differentiated from IAMD in that it focuses on theater and does not include any offensive dimensions.

- Weapons engagement zones, specifically missile engagement zones and joint engagement zones, are expanded to include provisions for ballistic missiles.

An important supporting document to JP 3-01 is the AMD multi-service tactics, techniques and procedures (AMD MTTP) developed by the Air, Land and Sea Applications Center. The AMD MTTP, which is currently under revision, augments and provides details to JP 3-01 in several important areas. The most significant ones are briefly listed as follows:

- Counter unmanned aircraft systems (UAS) including low, slow and small (LSS) unmanned aircraft.
- Cyberspace operations.
- Identification.

- AMD planning to include cross AOR.
- AMD execution.

Counter-air / IAMD relationship

The 2017 edition of JP 3-01 specifically states, “Countering air and missile threats consists of a combination of counter-air and IAMD.” JP 3-01 further portrays the relationship between counter-air and IAMD via Figure 3, which represents the previously addressed counter-air framework within the blue (dark and light) shaded areas. Aspects of counter-air overlapping with or supporting IAMD (i.e., OCA attack operations and all of DCA) are shown as dark blue. OCA elements unique to counter-air and separate from IAMD (SEAD, fighter escort and fighter sweep) are represented in light blue. IAMD includes the previously mentioned dark blue areas overlapping with counter-air, and the grey areas consisting of homeland defense, global MD, global strike and C-RAM, all of which are unique to IAMD. It is important to note that neither IAMD nor counter-air are subsets of the other. Rather, they complement one another and only together do they address the totality of countering the air and missile threat at all levels.

Implications

IAMD is not a homogeneous entity. Rather it is a combination of interconnected piece parts that include service, theater, global, air, ballistic, offensive, defensive, operational and planning elements. The implications of the 2017 revision of JP 3-01 are many. A few of the more significant ones follow:

- Counter-air remains foundational at the theater level in terms of both offense and defense. The basic tenets remain unchanged.
- IAMD is now an accepted approach for integrating both capabilities and overlapping operations including aspects of counter-air, global MD, homeland defense, global strike and C-RAM.
- Counter-air and IAMD coexist. They complement each other and together encompass the full spectrum of countering air and missile threats.
- IAMD, while supported by missions such as AD, BMD, counter-air, global MD, HD, global strike and C-RAM, is not a mission. Rather, it is an integration approach. This distinction is important in terms of lexicon and use of the term IAMD.
- Execution of all aspects of countering air and missile threat missions remains at the GCC level and below. Execution above this level (i.e., at the global level) is not advocated.
- The need remains for a synchrinizer or commander with coordinating authority for global missile defense planning. This need was reaffirmed in a recent joint staff review of IAMD governing documents. Regardless whether this role remains tasked to USSTRATCOM, cross-AOR planning involving multiple CCDRs requires third party involvement for maximum effectiveness.
- IAMD is not synonymous with global planning. Global planning, while being an important aspect of IAMD, only applies to a subset of threats generally focusing on longer-range BMD. Planning against the preponderance of the threat spectrum
is still decentralized to GCC level and below.

- Offensive counter-air attack operations remain critical to IAMD. Efforts to improve the integration of them with the defensive elements should be a high priority.

- Ballistic missiles remain a special threat category, particularly at the global level. While there are ongoing efforts to merge more aspects of air defense and missile defense, extant practice and capabilities still demand a focused BMD effort both in terms of planning and execution.

- Air and missile defense terminology remains, in some cases, imprecise. While JP 3-01 makes a concerted effort to clarify the term “air” as being separate and distinct from “ballistic,” air is still used in a broader sense (i.e., inclusive of ballistic) within counter-air doctrine (e.g., counter-air, DCA, integrated air defense system (IADS)).

- Joint staff advocacy for IAMD in joint doctrine needs to remain strong. Without such advocacy, AMD integration amongst services, CCMDs and mission areas will neither achieve the levels necessary nor mature with degrees of urgency that are required. Unfortunately, recently imposed significant cuts to JIAMDO’s budget and manpower have significantly weakened this advocacy. These cuts should and must be revisited.

**Step forward**

The 2017 edition of JP 3-01 represents a major step forward in articulation of joint operational doctrine for countering air and missile threats. In addition to reaffirming key foundational elements, the publication clarifies the relationship between counter-air and IAMD in a way that shows their important complementary nature. It further supports the chairman’s joint IAMD Vision 2020 which advocates for joint integrated forces “where all capabilities—offensive, passive, kinetic, non-kinetic (e.g., cyber warfare, directed energy, and electronic attack) are melded into a comprehensive joint and combined force capable of preventing an adversary from effectively employing any of its offensive and defensive weapons and capabilities.”

What future versions of JP 3-01 will look like cannot be foreseen. The emergence of long-range air-to-air and surface-to-air weapons, rapidly evolving capabilities of small UAS and hypersonic weapons, and the need to incorporate non-kinetic effects will challenge the existing norms, therefore portending continued conceptual and doctrinal development efforts in these areas. The new edition of JP 3-01, in addition to establishing and greatly clarifying current doctrine, also provides a strong foundation for the development of future operational concepts and doctrine.


Michael Wiant is CSRA’s Systems engineer principal. Wiant has 31 years of experience in integrated air and missile defense; more than 21 years of experience performing system engineering and architecture analysis in the IAMD domain; and 31 years of experience on Combatant Command and Joint Staffs.

---

Crew Chief Airman 1st Class Raul Guzman prepares to launch an F-35A Lightning II aircraft piloted by Lt. Col. Yosef Morris, 388th Fighter Wing, during Red Flag 17-1, Nellis Air Force Base, Nev., Feb. 3, 2017. While deployed, the F-35 will fly alongside fourth- and fifth-generation platforms providing offensive and defensive counter air, suppression of enemy air defenses and limited close air support. (R. Nial Bradshaw/ U.S. Air Force)