



Rear Adm. Larry Watkins, deputy commander of the U.S. 3rd Fleet, greets Korean military members participating in an integrated air and missile defense (IAMD) seminar during Rim of the Pacific (RIMPAC) 2022. Militaries from twenty-six nations participated in RIMPAC from June 29 to 2 August 2022 in and around the Hawaiian Islands and Southern California. The world's largest international maritime exercise, RIMPAC is one of many exercises that foster security cooperation between allied and partner nations in the Indo-Pacific region. (Photo by Mass Communications Specialist 3rd Class Demitrius J. Williams, U.S. Navy)

# Integrated Air and Missile Defense Security Cooperation in the Indo-Pacific

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When Russia attacked Ukraine in February 2022, the invasion caught the best military minds in the Western world by surprise and convinced nearly everyone that it would result in a swift capture and defeat of Kyiv.<sup>1</sup> Russia had an overwhelming number of soldiers and significant advantages in armor, airpower capability, and by any metric used to measure past wars, the unequivocal ability to succeed swiftly. Yet quick victory eluded Russia, and while the outcome is still to be resolved, it can be said the metrics used to measure the likelihood of success before the conflict began will not be the same factors that determine the victor.

In the Pacific, military planners observe the activities in Ukraine with great interest, drawing parallels to potential Chinese aggression in the region. Given China's ever-increasing long-range strike capability and its escalating provocative rhetoric and bellicose expansionist activity toward multiple sovereign neighbors, U.S. Indo-Pacific Command (INDOPACOM) has

been developing strategies in the region to counter the growing threat. One aspect of the Ukraine conflict that was anticipated is the ability of air

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and missile attacks (and the defense of these systems) to shape the outcome of today's wars. Hundreds of Russian missile strikes and the extensive damage they inflicted on Ukraine's infrastructure quickly resulted in the United States supplying Ukraine with over \$29 billion in aid, mostly for air and missile defense.<sup>2</sup> While Western support to back Ukraine in defending itself helped turn the tide of Russia's advancement, having the integrated air and missile defense (IAMD) capability in place from the beginning would have saved lives and protected Ukraine assets.

Examining similar scenarios potentially playing out in the Indo-Pacific, the United States has been working with regional partners to consider options in defending themselves against the increasing China menace. Many of the same systems the United States provided to Ukraine have been in place to protect Pacific allies for years. Complicating regional matters, North Korea's rapid progression with advanced ballistic missile ability threatens Japan, the Republic of Korea (ROK), and the United States itself, prompting INDOPACOM to ramp up its IAMD portfolio with a program that began nearly a decade ago. Recognizing the importance of conducting regional missile defense, INDOPACOM tasked Pacific Air Forces to stand up the Pacific Integrated Air and Missile Defense Center (PIC) in 2014. The vision that guides the organization is to defend the region from the full range of advanced air and missile threats—with ability to seamlessly integrate with high-end allies.<sup>3</sup> To accomplish the vision, the PIC's mission is to enhance INDOPACOM theater, joint, and coalition and multinational IAMD capability by providing IAMD academics and education, and promoting IAMD integration among components, critical allies and like-minded partners based on priorities outlined in OPLANS, Theater Cooperation Plan, and the INDOPACOM Campaign Plan.<sup>4</sup> A joint team of eight retired and active-duty military professionals comprise the PIC, engaging in IAMD security cooperation efforts in support of the 94th Army Air and Missile Defense Command (AAMDC) and advancing development of regional IAMD defenses to deter future conflicts. Maj. Gen. Brian Gibson, former commanding general of the 94th AAMDC, noted, "China and North Korea fired the greatest number of (test) missiles last year, so certainly the environment is different than a few short years ago. Our responsibility

is to be ready.<sup>5</sup> Readiness includes a multinational partnership of like-minded nations to collaborate in developing a strong regional IAMD design to deter potential adversaries. While the U.S. military is considered a global power, it alone cannot defend assets and simultaneously protect allies and partners against air and missile attacks in the vast Indo-Pacific region.

As INDOPACOM scrutinizes similarities among

*Missile Defense Operations*, to allies and partners.<sup>7</sup>

Academics lay the foundation for a future coalition in which members understand and speak IAMD with a baseline understanding and common vernacular. The PIC's initial partner engagement in 2015 consisted of a defense design workshop with IAMD personnel from Japan, the ROK, and the United States. Patterned after the well-established international IAMD wargame

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combat in Ukraine, Saudi Arabian missile strikes, and rising tensions in the Pacific, stark differences emerge among the European theater, the Middle East, and the Indo-Pacific region. Both Saudi Arabia and Ukraine are keenly aware of the enemy's missile capabilities along their borders and require little coordination or reliance on neighboring countries to establish effective defense. Indo-Pacific geopolitics are not as straightforward as the circumstances in Riyadh and Kyiv, where defenders focus their attention along a defined threat axis. In the Pacific, where the majority of nations are surrounded on most sides by water, adversary submarine ballistic missile, surface cruise missile, and air-launched cruise missile capabilities necessitate the requirement to conduct 360-degree coverage. Antagonists can launch missile strikes from all points on the compass, and threats can emerge from enemy territory, fly vast distances over open ocean, and trespass through allied sovereign airspace as warheads target another nation. The PIC recognizes the growing capability of potential adversaries and, using INDOPACOM's *IAMD Vision 2028* as a guide, continues to find avenues and means to highlight and address this challenging regional concern.<sup>6</sup>

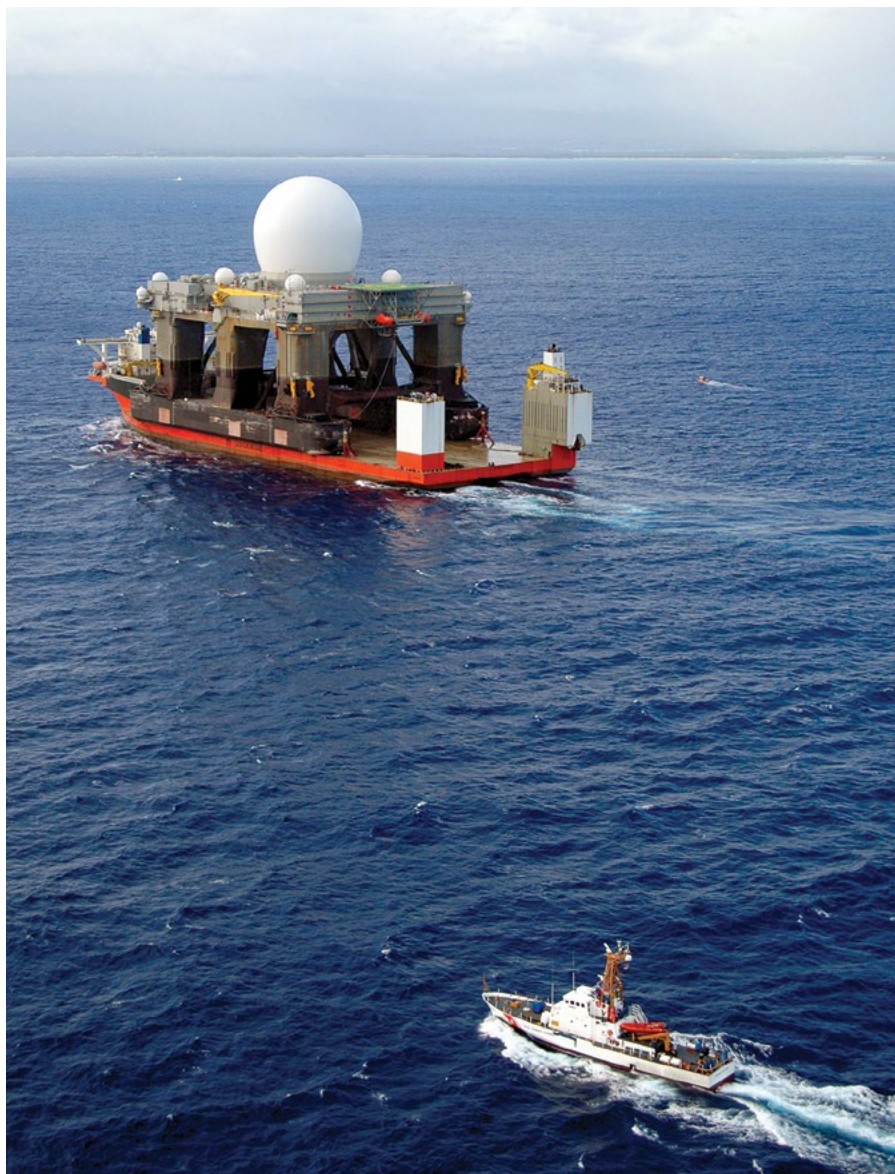
A primary aspect of the PIC's mission to promote multinational defense design is providing academics and education on IAMD fundamentals as outlined in Joint Publication 3-01, *Countering Air and Missile Threats*, and Army Field Manual 3-01, *U.S. Air and*

*Nimble Titan*, Japanese and Korean service members cemented the importance and value of the PIC's first multinational event: the Multilateral Table-Top Experiment (MTTX). The first two years of the MTTX involved Japanese and ROK IAMD planners collaborating in a fictional geographic scenario to develop a combined defense design to defeat a regional rival. Participants discovered an appreciation of IAMD information sharing that led to changes increasing decision space for leadership in making informed choices on ballistic missile defense. Unfortunately, in 2017, a cooling of the political relationship between Japan and Korea caused the ROK to disengage with the PIC in multilateral IAMD collaboration for the next five years, but a new regional IAMD partner emerged with Australia in 2016.

Australia initially took a bilateral, systematic, pragmatic approach to PIC engagement. After the first year and multiple one-on-one PIC sessions to gain the academic background necessary to develop IAMD acumen, Australia joined Japan to establish a follow-on to the MTTX: the Multilateral IAMD Experiment (MIX). Over the last seven years, the MIX has grown in complexity and content, achieving secret classification and a real-world geometry laydown that infinitely enhances value for all partners. Throughout the defense design process, the three nations experiment with defense postures, preplanned responses,

command-and-control authority, and bilateral and multilateral cooperation. The Missile Defense Agency Modeling and Simulation Team captures essential decisions from the participants and builds scenarios to illustrate the outcomes and validity of their designs. Resulting lessons learned feed development of future trilateral IAMD engagements. Most recently, Australia, Japan, and the United States experimented in the MIX with regional designs where command and control is shared among the partners. Policy challenges revealed by exercising combined command and control are highlighted, shared, and discussed in other venues such as Nimble Titan and the Trilateral Missile Defense Forum, as operational-level issues discovered at the MIX often must be solved at a higher policy level.

With the continuing success of the MIX, the PIC relaunched the MTTX in 2022. While the MIX is a “university-level” defense design experiment, MTTX 2022 established a “community college” entry-level program that included IAMD representatives from eight Pacific nations. The week-long experiment incorporated three days of PIC-led IAMD academics and one day during which nations shared their IAMD capabilities and socialized and discussed their concerns openly with all participants. A highlight of the week was a day dedicated to a defense design workshop. The eight nations divided into two teams and developed a defense design for a federation of nations against a common antagonist. The teams observed how their defense design fared against multiple air and missile attacks from the regional adversary, and with their newfound insight, adjusted their design to mitigate future attacks. The five-day event was interwoven with professional development events to include



The U.S. Coast Guard cutter *Assateague* provides security for a Sea-Based X-Band Radar ship as it enters Pearl Harbor, Hawaii, 21 December 2005. (Photo by Petty Officer 3rd Class Michael De Nyse, U.S. Coast Guard)

a tour of the Sea-Based X Band Radar and a visit to the 613th Air & Space Operations Center. During his opening comments at the MTTX, Gibson highlighted that in his thirty-plus-year military career, he had never seen so many militaries come together at one time to collaborate on IAMD. MTTX participants echoed the value of the opportunity to meet IAMD experts from other nations, describing the MTTX as the first time they discussed their issues with several neighboring countries. Leveraging the surprising achievement of the MTTX, the PIC introduced an innovative addition to

its Academic and Partner Engagement lines of effort by creating quarterly multinational educational activities, with one recent major event—the Japanese Annual Shooting Practice (ASP) at McGregor Range in New Mexico in September 2023.<sup>8</sup>

The 2023 ASP was not the first time the PIC hosted other nations to attend Japanese Patriot maneuvering and live firing, but it encompassed the largest number of observing countries to date. The PIC supported the 2021 ASP, inviting the Philippine Air Force, and the activity was a major success due to the Japanese and Philippine airmen's engagement and exchange of contacts for further collaboration. This year, Japan was very generous in allowing the PIC to invite nine countries throughout the region to observe its Patriot live-fire event. During the live-fire event, nations witnessed the Japanese command and control, saw firsthand "shoot and scoot" tactics, and experienced the teamwork and esprit de corps of the Japanese Air Self-Defense Forces (JASDF). Prior to the live-fire event, the PIC provided multiday IAMD academic and collaboration events to educate participants on IAMD concepts, highlighting specific actions and techniques that were then observed during the live fire.

From its modest establishment in 2014, the PIC has expanded participation in its academics and partner engagement from two to thirteen Indo-Pacific nations, many located within what is known as the First Island Chain.<sup>9</sup> Academics provided by the PIC run the gamut of multiday courses delivered from Pacific Air Forces Headquarters to virtual three-hour subject-focused presentations. Multiday courses are taught by a combination of PIC contractors and instructors from the Joint Ballistic Missile Defense Training & Educational Center. Topics included in the multiday courses include regional threat briefs, deliberate planning, crisis action planning and employment, regional and sector area air defense commander classes, joint IAMD classes, and the joint IAMD instruction. Specific IAMD multiweek instruction is provided to the ROK Air Force and the ROK Navy.

Shorter courses provided by the PIC include a quarterly Intro to IAMD seminar describing the fundamentals of IAMD to include the four operational elements of IAMD; the Joint Theater Air and Missile Defense Board; critical and defended asset prioritization; and the criticality, vulnerability and threat

assessment process. Quarterly virtual academics presented online are routinely attended by over 150 ally and partner participants across the Indo-Pacific and include topics such as passive defense, cyber in IAMD, counter-unmanned aircraft system operations, and hypersonic missiles. Once baseline IAMD understanding is established, the PIC progresses to experimenting with the nations on defense design.

Going forward, the PIC will continue bilateral engagements when required and multinational activities where able. INDPACOM set up and established the PIC, and the 94th AAMDC directs the PIC's security cooperation efforts, but the PIC primary customers are the countries in the region. If a nation requests PIC secrecy due to regional geosensitivity, the PIC maintains anonymity with engagement. The PIC never publishes or shares information about any partner unless first garnering approval to impart details to neighboring countries. Some nations exercise caution with publicity and interaction; others are more open with their PIC exchanges. It is not uncommon for visiting dignitaries to request a PIC presentation on capabilities, and the PIC team always accommodates. Often during foreign visits, the PIC receives higher-level guidance on a nation's desires for PIC assistance toward their IAMD development. PIC professionals are graciously supportive, believing with shared IAMD understanding, operational improvements occur on the battlefield, and a synergistic effect on the region's ability to defend itself is realized.

The PIC continues close collaboration with the most capable partners in the region (Japan and Australia) with the MIX, with the prospect of observations and lessons learned by MIX participants sharing with developing IAMD countries at the MTTX. MIX members are expected to become MTTX mentors with Australian and Japanese IAMD professionals taking the lead. MTTX participants will work together to develop a complete regional defense design. Their plan will be experimental and include IAMD capabilities of eight regional nations, making it a holistic Indo-Pacific IAMD plan. During the design process, MTTX participants will observe how shared early warning increases decision time, examine how layered defenses increase effectiveness, view how practiced preplanned responses increase probability of success, and discover additional significant IAMD revelations. Most importantly,

IAMD professionals from eight regional colleagues will work side by side, with shared IAMD vernacular, and depart at the conclusion with calling cards of like-minded military members to contact and cooperate with for years to come.

The PIC forges ahead, expanding the INDO-PACOM IAMD portfolio with current partners and the goal of adding nations to the MIX and MTTX. Bringing onboard new IAMD partners is not only a strategic message promoting regional cooperation; it also allows for operational collaboration to synergize advantages of multilateral integration and interoperability. In a future MIX scenario, Australian and Japanese operators may consider sharing early warning

information and discuss and collaborate on interceptor deconfliction, with a Korean ship launching interceptors against missiles targeting a Philippine asset. Decisions they make can be incorporated in the simulation tool and played back with the outcomes delivered to their respective nations to visually demonstrate to leadership the advantages of establishing a regional, shared defense design. As the situation in Ukraine continues to unfold, real-world IAMD lessons learned inform INDOPACOM strategists, planners, and policymakers as well as the nations in the region with a candid and fundamental military axiom: *You may not win a war by having effective IAMD capability, but you can certainly lose a conflict if you don't.* ■

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## Notes

1. Mike Eckel, "How Did Everybody Get the Ukraine Invasion Predictions So Wrong?," Radio Free Europe/Radio Liberty, 17 February 2023, <https://www.rferl.org/a/russia-ukraine-invasion-predictions-wrong-intelligence/32275740.html>.

2. Joshua Yaffa, "The Impact of Russian Missile Strikes on Ukraine's Power Grid," *New Yorker* (website), 20 February 2023, <https://www.newyorker.com/culture/photo-booth/the-impact-of-russian-missile-strikes-on-ukraines-power-grid>; David Vergun, "Air Defense Systems, Long-Range Fires Capability to be Sent to Ukraine," U.S. Department of Defense, 3 February 2023, <https://www.defense.gov/News/News-Stories/Article/Article/3288155/air-defense-systems-long-range-fires-capability-to-be-sent-to-ukraine/>.

3. U.S. Indo-Pacific Command (USINDOPACOM) J-3, *INDOPACOM IAMD [Integrated Air and Missile Defense] Vision 2028* (Honolulu: USINDOPACOM, 2018); USPACOM Integrated Air and Missile Defense Center of Excellence TASKORD #447, 26 July 2014.

4. USINDOPACOM J-3, Pacific Integrated Air and Missile Defense (IAMD) Center (PIC) Operations and Activities TASKORD P-971, 14 April 2020.

5. Brian Gibson, "Multilateral Table-Top Experiment (MTTX) Opening Remarks" (speech, MTTX, Honolulu, December 2022).

6. Lynn Savage, "US INDOPACOM's Integrated Air and Missile Defense Vision 2028: Integrated Deterrence toward a Free and Open Indo-Pacific," Air University, 28 January 2022, <https://www.airuniversity.af.edu/JIPA/Display/Article/2915508/us-indopacom-integrated-air-and-missile-defense-vision-2028-integrated-deterre/>.

7. Joint Publication 3-01, *Countering Air and Missile Threats* (Washington, DC: U.S. Government Publishing Office [GPO], 6 April 2023) (CAC required); Field Manual 3-01, *U.S. Air and Missile Defense Operations* (Washington, DC: U.S. GPO, 22 December 2020).

8. USINDOPACOM J-3, TASKORD P-971.

9. James R. Holmes, "Defend the First Island Chain," *Proceedings* 140, no. 4 (April 2014), <https://www.usni.org/magazines/proceedings/2014/april/defend-first-island-chain>.