

Air and Missile



Dennis McElveen



U.S. Army

A Patriot guidance enhanced missile (top, inset) streaks from its launching pad at White Sands Missile Range, N.M. Above, Patriot missile equipment rolls off a cargo ship at Tengan Pier in Okinawa, Japan, and into a convoy for delivery to Kadena Air Force Base. In Osan, South Korea (opposite page), Spc. Daniel Nebraska of Battery C, 1st Battalion, 43rd Air Defense Artillery, 35th Air Defense Artillery Brigade performs a maintenance check on a Patriot missile.

Defense Goes Global

By Maj. Gen. Robert P. Lennox

In October, North Korea tested a nuclear device that pushed the nightmare scenario of a rogue state armed with both nuclear warheads and missile delivery systems a step closer to reality. The underground detonation generated international headlines calling for increased spending on missile defense programs, but many of the initiatives called for in the articles that appeared below the headlines were already under way.



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Soldiers from the 6th Air Defense Artillery Brigade tested the terminal high-altitude area defense system this summer at White Sands Missile Range, N.M.



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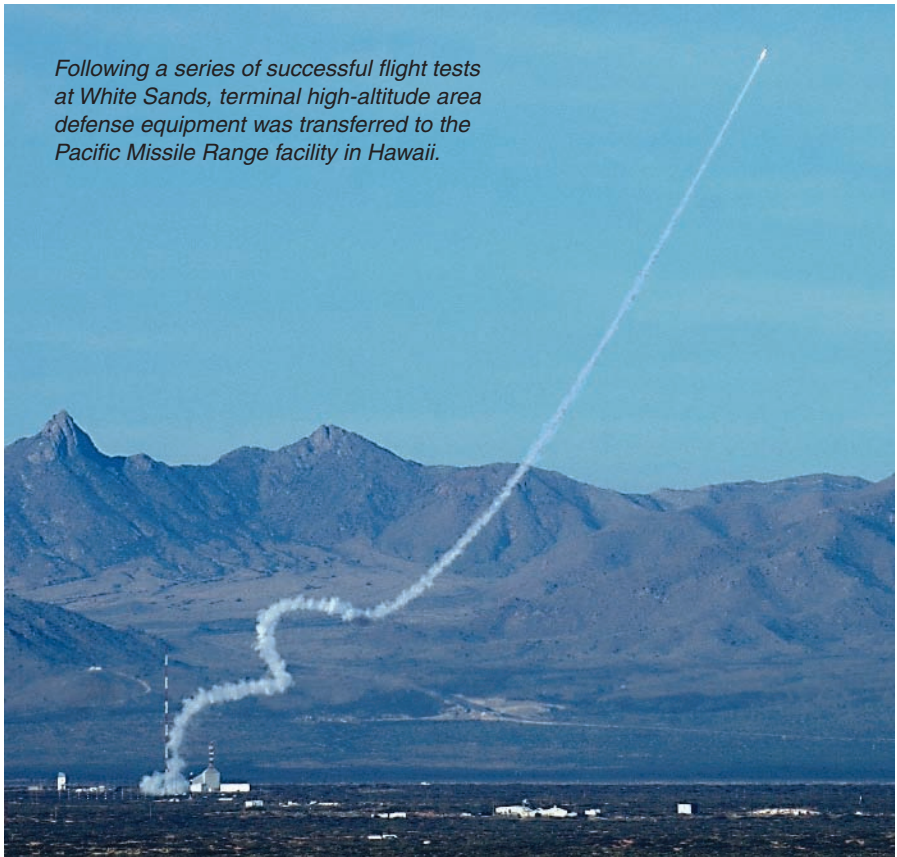
In Okinawa on the day of the nuclear test, the first shipment of Patriot Advanced Capabilities-3 (PAC-3) missile equipment had just arrived at Tengan Pier and was awaiting delivery to the 1st Battalion, 1st Air Defense Artillery (ADA), Kadena Air Base, Japan. The Patriot battalion's deployment from Fort Bliss, Texas, to Japan had made its own headlines because it symbolized both the buildup of U.S. theater missile defense capabilities in the Asia-Pacific region and a coalition approach to a more proactive defense posture.

As Pyongyang started its countdown, soldiers of Battery C, 1st Battalion, 43rd Air Defense Artillery, 35th ADA Brigade, Osan Air Base, South Korea, were, by coincidence, conducting an operational readiness exercise to ensure that Patriot missile launchers oriented to defend against an air attack from the north were ready to launch at a moment's notice. As Echo Battery's "hot" crews went about their battle drills, they were not particularly concerned about North Korea's nuclear capabilities or its development of a long-range missile that might someday be capable of reaching the U.S. West Coast. North Korea's burgeoning arsenal of short- and medium-range theater ballistic missiles, which they knew could strike any spot on the peninsula with conventional or chemical warheads, gave them enough to worry about.

The stellar performance of U.S. Patriot systems during Operation Iraqi Freedom, when the system went eight for eight against Iraqi missiles, provided soldiers of the U.S. Patriot battalions cause for confidence. However, Patriot is only the lower tier of America's envisioned multilayered theater air and missile defense system. The terminal high-altitude area defense (THAAD) system, which will serve as the upper tier of theater missile defense, is yet to be

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Following a series of successful flight tests at White Sands, terminal high-altitude area defense equipment was transferred to the Pacific Missile Range facility in Hawaii.



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fielded. The good news is that the missing piece is about to fall into place.

In September, the Missile Defense Agency (MDA) announced its decision to accelerate the THAAD testing and fielding schedule, a decision that resulted from U.S. and allied combatant commanders' concerns around the world. The MDA based its decision to speed up THAAD fielding on concerns expressed by combatant commanders such as Gen. B.B. Bell, commander of U.S. Forces Korea. Gen. Bell had described the threat posed by the North Korean missile arsenal, which he said includes more than 600 Scud missiles and as many as 200 medium-range ballistic missiles, during his appearance before the House Armed Services Committee on March 9, 2006. "The regional missile threat requires a robust theater missile defense system to protect critical Combined Forces Command capabilities and personnel. PAC-3 missile system upgrades and im-

proved munitions have significantly enhanced our posture," Gen. Bell told the committee. "To protect critical U.S. facilities in Korea, we must complete upgrading the remainder of our systems with advanced theater missile defense capabilities. Continued production of PAC-3 missiles in the near term, followed by continued development of the terminal high-altitude air defense, airborne laser and Aegis ballistic missile defense will provide the layered missile defense capability we require in the future."

Events subsequent to Gen. Bell's appearance before the committee reinforced his assessment of the theater ballistic missile threat. On July 4, 2006, North Korea conducted test launches of a long-range missile and five shorter-range ballistic missiles. The long-range Taepo Dong-2 missile, which some analysts believe is capable of hitting the western United States, failed after about 40 seconds, but it caused U.S. Army North to bring the 100th Missile Defense Brigade (Ground-Based Midcourse Defense) at Colorado Springs, Colo., and the 49th Missile Defense Battalion (Ground-Based Midcourse Defense) at Fort Greeley, Alaska, to operational status for the first time. However, it was North Korea's tactical ballistic missile launches that most worried combatant commanders. *Jane's Defence Weekly* reported that "the successful launching of six Scud-class missiles (possibly including one No Dong) demonstrates that the Korean People's Army missile units have achieved a significant level of operational readiness and that the missile systems are developmentally mature."



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Gen. Bell told the *Asia Times* in July, "If there was an argument for a more capable missile defense, they [North Korea] made it very effectively for us. Until there's a peace treaty on this peninsula, I think we should be able to defend ourselves against them."

The 1st Battalion, 1st Air Defense Artillery, began its deployment from Fort Bliss to Kadena Air Base in August 2006. The battalion falls under the command of the recently activated 94th Army Air and Missile Defense Command at Fort Shafter, Hawaii. Stationing the battalion, which is equipped with the latest PAC-3 missiles, at Kadena enhances the security of Japan and our Air Force assets there by providing a reliable tactical ballistic missile defense deterrent in the region. The Okinawa deployment is one of several steps the United States and Japan are taking to ensure adequate missile defenses are in place. Other

examples include the deployment of an Aegis ballistic missile defense cruiser to Yokosuka (the entrance to Tokyo Bay), the colocation and integration of air defense command-and-control capabilities, the establishment of a bilateral joint operation coordination center at Yokota Air Base in the suburbs of Tokyo and the stationing of an X-Band radar in northern Japan to provide early detection and tracking of ballistic missile launches.

Accelerated THAAD Testing/Fielding Schedule

The fielding of THAAD, which is capable of intercepting incoming ballistic missiles at much higher altitudes and ranges than Patriot, will take theater missile defenses to the next level. The accelerated schedule will place THAAD in service by the end of fiscal year (FY) 2009 or early FY 2010, rather than in 2012 as originally planned. As part of America's ballistic missile defense system, THAAD will provide combatant commanders the ability to defeat short-, medium- and intermediate-range ballistic missiles that could threaten the United States, deployed U.S. forces, friends and allies. It will also share X-Band radar information with other members of the ballistic missile defense system. The MDA has designed THAAD to defend against mass raids of ballistic missiles and to provide highly flexible employment options. THAAD does not replace Patriot, but works with it to defend a larger battlespace. THAAD also works with the Aegis ballistic missile defense system, the ground-based midcourse defense system and various other sensors throughout the world to provide a layered defense against ballistic missile threats.

The terminal high-altitude area defense system arrives in Hawaii for further testing at the Pacific Missile Range.

Soldiers of the 6th Air Defense Artillery Brigade, Fort Bliss, operated the THAAD system during recent live-fire exercises at White Sands Missile Range, N.M., which included a successful intercept. The system has now been deployed to the Pacific Missile Test Facility in Hawaii for further flight tests. The U.S. Army recently announced that the first two THAAD batteries will be assigned to the 11th Air Defense Artillery Brigade, 32nd Army Air and Missile Defense Command, Fort Bliss. Soldiers assigned to the 11th Air Defense Artillery Brigade have been participating in THAAD development and testing in anticipation of the arrival of THAAD battery soldiers and equipment. New equipment training is scheduled to begin in 2008.

Countering the Rocket, Artillery and Mortar Threat

Recent events have also conspired to lend impetus to another air and missile defense mission—the quest to develop and field systems to counter the rocket, artillery and mortar threat. In Iraq and Afghanistan, rocket and mortar attacks account for a significant percentage of Coalition casualties. And this past summer, Hezbollah unleashed a surprisingly strong and sophisticated rocket barrage against Israel. The Israeli Defense Force's Patriot and Ar-

Hezbollah rocket attacks in Israel (below) increased the demand for systems that can counter rockets, artillery and mortar rounds. Hezbollah fighters turned some warheads into antipersonnel weapons by packing ball bearings into warheads, as the damaged car hood on the right attests.



the arrival of a different sort of terrorist threat. Our response this time should be a strong commitment to the continued development and fielding of a robust C-RAM force.

Air Defenders in the Global War on Terrorism

Meanwhile, ADA soldiers continue to play important roles in the global war on terrorism. Both active and Army National Guard ADA units have taken on highly dangerous non-air defense missions (primarily convoy escort, transportation and transition team duties) in Iraq and Afghanistan while many ADA soldiers deployed for Operations Iraqi Freedom and Enduring Freedom are performing air and missile defense missions.

■ Soldiers assigned to ADA's newly created Air Defense Airspace Management (ADAM) cells are employing forward area air defense command, control, communications and intelligence systems and Sentinel radars to help brigade and Stryker combat teams deconflict crowded airspace in Afghanistan and Iraq.

■ ADA soldiers have deployed dozens of rapid aerostat initial deployment (RAID) systems in Afghanistan and Iraq. In October, DoD awarded an \$11.6 million contract for delivery of more RAID systems, a threat detection system deployed via towers, masts and airships. The award is part of a more than \$23.1 million contract for both the RAID and RAID Eagle Eye Sensor systems. Work also continues on the joint land-attack cruise missile elevated netted sensor (JLENS) under a separate \$1.3-billion contract. Scheduled for fielding in 2011, the JLENS will provide over-the-horizon detection and tracking of incoming cruise missiles. It will enable the surface-launched advanced medium-range air-to-air missile (SLAMRAAM) system, expected to begin replacing Avenger in 2011, to counter one of the contemporary operational environment's most worrisome threats.

Homeland Air Defense

While some air defenders are participating in combat operations in Iraq and Afghanistan, others are protecting the United States against terrorist attacks. On a rotational basis, ADA battalions from the Army National Guard are serving as America's "palace guard," employing Avengers, Sentinel radars and a surface-to-air missile system not included in

row anti-missile systems, designed to intercept tactical ballistic missiles, contributed to early warning, but stood silent as rockets—sometimes falling at the rate of one per minute—slammed into Israeli cities. As rockets impacted in Haifa and Tel Aviv, the news media questioned why no weapon systems were available to counter them.

The Army has tasked Air Defense Artillery and Field Artillery to jointly develop and field counter-rocket, artillery and mortar (C-RAM) systems. For understandable operational security reasons, we cannot detail the tremendous progress already made in developing interim and future C-RAM systems, but it is apparent that C-RAM systems will soon be available to effectively defend deployed U.S. and Coalition forces (as well as host population centers) from rocket, artillery and mortar attacks.

Some might argue that the Hezbollah rockets were inaccurate, and that they inflicted relatively few casualties, even though Hezbollah fighters turned some rockets into nasty antipersonnel weapons by packing ball bearings into their warheads. Some would argue that the damage assessment does not justify pouring millions of dollars into countermeasures. However, the war in which we presently find ourselves—the global war on terrorism—is not a conventional war, and we cannot measure casualty rates by the yardsticks applied to previous wars. Political realities dictate that America and its allies cannot afford to accept relatively low military and civilian casualties in a protracted war of attrition in which our adversaries view the death of a single soldier as a strategic victory and the deaths of children at play in a schoolyard or shoppers browsing the stalls of a crowded bazaar as cause for celebration.

Sirens wailed as Scud missiles approached Tel Aviv or Dhahran during Operation Desert Storm, and our response was to strengthen our ballistic missile defenses. Now the sirens are wailing again, this time to announce



Above, National Guardsmen operate the Norwegian advanced surface-to-air missile system as part of the National Capital Region homeland air defense mission.



Capt. James B. Brindle

Air Defense Artillery soldiers deployed Patriot, Avenger (left) and Sentinel radar systems to the Pacific Coast to participate in the Deployable Homeland Anti-Cruise Missile Defense Proof of Concept Operation.

the U.S. Army inventory—the Norwegian advanced surface-to-air missile system—to protect the National Capital Region against 9/11-type terrorist aerial attacks.

In July 70 Avenger soldiers from the 1st Battalion, 44th ADA, augmented by Patriot soldiers from the 3rd Battalion, 43rd ADA and 1st Battalion, 7th ADA, deployed a composite air and missile defense battery equipped with Patriot, Avenger and Sentinel radar systems from Fort Bliss to California's Pacific coast. Participating in the North American Air Defense Command's Deployable Homeland Anti-Cruise Missile Defense Proof of Concept Operation, the composite battery successfully integrated its air and missile defense systems with U.S. Air Force fighters and a U.S. Navy Aegis cruiser.

Air and Missile Defense Transformation Continue

While engaged in the global war on terrorism, confronting regional missile threats around the world and anticipating the arrival of new weapon systems, Air Defense Artillery is completing its transformation to an air and missile defense force structure optimized for 21st-century operations. The hallmark of air and missile defense transformation is the inactivation of divisional ADA battalions, which is almost complete, and the creation of air and missile defense composite (Patriot/Avenger) battalions at echelons above division. As currently envisioned, by the end of this decade the air and missile defense force will consist of eight pure Patriot battalions, five air and missile defense composite battalions, and one pure SLAMRAAM battery. ADAM cells will be positioned in every division headquarters, brigade combat team, Stryker brigade combat team and aviation brigade combat team to restore third-dimension situational awareness and airspace management functional capabilities lost through the inactivation of divisional ADA battalions.

Missile Defense Goes Global

Our presently deployed missile defense systems give us a highly effective shield against the ballistic missile threats we expect to confront during the first part of the 21st century. Systems soon to be fielded will give us a leak-

proof, or near leakproof, defense. And we are making rapid progress in developing systems, including SLAMRAAM and JLENS, to counter the emerging cruise missile and unmanned aerial vehicle threats. Events such as North Korea's missile launches and nuclear tests, not to mention Hezbollah's midsummer bombardment of Israel with short-, medium- and long-range rockets, serve only to add thrust to air and missile defense programs that were already in overdrive.

Toward the end of the decade, ADA brigades currently clustered at Fort Bliss will begin dispersing to other power projection platforms throughout the United States. The Air Defense Artillery School will move from Fort Bliss to Fort Sill, Okla., to stand up the Fires Center of Excellence, which offers both enhanced resources and opportunities to synergize training and combat development. In previous decades, when U.S. Patriot battalions stood virtually alone on the front lines of theater missile defense, these moves, which are mandated by Base Realignment and Closure Commission recommendations and revised national defense strategies, would have been the centerpiece of any article about air and missile defense. The big news today, however, is that air defense artillery is no longer a stand-alone branch.

Germany, Italy and the United States are jointly developing the medium extended air defense system (MEADS), the eventual replacement for Patriot. The Army will start fielding MEADS, which is currently in the design and development phase, incrementally over the next several years by incorporating MEADS technologies into the Patriot system. Patriot, in effect, will morph into MEADS. The "objective" MEADS will be more deployable and more mobile than today's Patriot. It will feature a 360-degree area of coverage and possess improved interoperability, situational awareness, reliability and lethality.

In the future, ADA soldiers will confront future air and missile threats as team players in a global alliance of joint and coalition theater air and missile defense forces representing the world's most technologically advanced nations. This globalization will produce theater air and missile defense forces fully capable of globally protecting U.S. and allied forces from air and missile attack wherever they may be deployed. ★