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Shallow Ramparts:

Air and Missile Defenses in the June 2025 Israel-Iran War

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Introduction

There are two remarkable stories about defenses during the war between Israel and Iran in June 2025. One is the failure of Iran's much-discussed air defense system; the other, the success of the Israeli missile defense system. This chapter begins with the poor Iranian performance before turning to the Israeli defensive efforts. Ultimately, the war underscored how fragile Iran's air defenses were, how key air superiority was to Israeli strategy, and how strained the Israeli air and missile defense system was despite its impressive performance. The June 2025 war illustrates the difficulty of air and missile defense in modern high-intensity conflict, demonstrating challenges facing defenders and strategies for the offense.

Iran's Air Defenses

The failure of Iran's air defense system during the June 2025 war with Israel was surprising to many observers. After only a few days of fighting the Israeli Air Force claimed to have established "full aerial superiority" over Iran and destroyed 120 Iranian transporter erector launchers (TELs).[1] This outcome was in spite of the Iranian military's pursuit over the past two decades of improved air and missile defenses, either by importing sophisticated Russian equipment — the most high-profile example being the purchase of four S-300PMU batteries — or through domestic production of surface-to-air missile (SAM) systems.[2] Nevertheless, Israel maintained air superiority over Iran until a ceasefire was reached on June 24. A few explanations suggest why the Iranians could not prevent the Israelis from striking targets with relative impunity.

Since the initial exchanges between the regional rivals in 2024, Israel carefully prepared the battlefield for conflict with Iran, targeting Iran's most sophisticated air defenses. The failure of the Iranian air defense system during the June 2025 war with Israel was over a year in the making.

1 Emmanuel Fabian, "Israel has full control of Tehran's airspace, over 100 missile launchers destroyed, IDF says," *Times of Israel*, June 16, 2025, https://www.timesofisrael.com/liveblog_entry/israel-has-full-control-of-tehrans-airspace-over-100-missile-launchers-destroyed-idf-says/.

2 April Brady, "Russia Completes S-300 Delivery to Iran," *Arms Control Today*, December 2016, https://www.armscontrol.org/act/2016-11/news-briefs/russia-completes-s-300-delivery-iran.

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After True Promise I in April 2024, the Iranian drone and missile attack on Israel in retaliation for the Israeli bombing of the Iranian embassy in Damascus, the Israeli Air Force struck several targets in Iran. The most significant was the radar for the S-300 battery near Isfahan.[3] In the wake of True Promise II in October 2024 and the more expansive Israeli Air Force retaliatory strikes, many reports citing anonymous Israeli and American officials stated the remaining Iranian S-300 units had been destroyed.[4] While little hard evidence backed up this claim, most S-300 sites were empty after Israel's strikes in October.[5] Two Iranian early warning radars near the Iraqi border were also attacked.[6] The attrition of Iranian S-300s likely played a major role in Iran's poor performance during the June 2025 conflict.

But what of Iran's indigenous air defenses? Iran touted systems like Khordad-15, Bavar-373, and Sevom Khordad as threatening the most sophisticated US and Israeli aircraft.[7] While those systems had not been tested in high-intensity combat, they had seen some success in shooting down US drones in the Persian Gulf.[8] However, a Center for Nonproliferation Studies (CNS) report from shortly before the war suggested Iranian air defenses were rather brittle and not well integrated.[9]

Based on footage of an air defense command center geolocated near the Natanz nuclear facility, CNS analysts concluded Iranian air defenses were not well networked.[10] Radar displays showed a gap between early warning sensors and SAM systems that would have created problems for prosecuting air threats. This gap makes the system vulnerable to rapidly developing threats as data must be handed from one system to another, introducing delays and uncertainty. The separation between sensors and shooters poses even greater problems when considering the Iranians describe those early warning radars as being critical for detecting stealth aircraft.

Moreover, there is the vintage and far-flung origins of the Iranian radars. The early warning radars were derived from older Soviet systems while the Khordad-15 SAM battery had a more modern phrased array radar system. The Iranians may have faced difficulties integrating the feeds of the two systems given their age and varied origins.

3 Charles Clover, "Military briefing: How Iran is preparing for Israeli or US strikes," *Financial Times*, May 31, 2025, https://www.ft.com/content/dd7a69cb-314b-452c-b87d-0f7ec2a6601a.
4 Sune Engel Rasmussen, Laurence Norman, and Anat Peled, "Israeli Strikes on Iran Expose Gap in Prowess Between Two Arch Foes," *Wall Street Journal*, October 27, 2024, https://www.wsj.com/world/middle-east/israeli-strikes-on-iran-expose-gap-in-prowess-between-two-arch-foes-aded7cf8.
5 Charles Clover, "How Iran is preparing for Israeli or US strikes."
6 Laurence Norman, Lara Seligman, and Michael R. Gordon, "Israel Inflicted Severe Damage on Iran's Missile Program and Air Defenses," *Wall Street Journal*, November 2, 2024, https://www.wsj.com/world/middle-east/israel-inflicted-severe-damage-on-irans-missile-program-and-air-defenses-207aafae.
7 "Iran to Develop New Version of Bavar-373 Missile System," *Tasnim News Agency*, May 10, 2023, https://www.tasnimnews.com/en/news/2023/05/10/2892742/iran-to-develop-new-version-of-bavar-373-missile-system; "Iranian Missile System Used in Downing US Drone on Display in Tehran," *Tasnim News Agency*, February 10, 2021, https://www.tasnimnews.com/en/news/2021/02/10/2450434/iranian-missile-system-used-in-downing-us-drone-on-display-in-tehran; "Iranian Army Uses New Air Defense System for 1st Time during Drills (+Video)," *Tasnim News Agency*, November 22, 2019, https://www.tasnimnews.com/en/news/2019/11/22/2144660/iranian-army-uses-new-air-defense-system-for-1st-time-during-drills-video.
8 Joshua Berlinger, Mohammed Tawfeeq, Barbara Starr, Shirzad Bozorgmehr, and Frederik Pleitgen, "Iran shoots down US drone aircraft, raising tensions further in Strait of Hormuz," *CNN*, June 20, 2019, https://www.cnn.com/2019/06/20/middleeast/iran-drone-claim-hnk-intl.
9 Aaron Mehta, "Iran's air defenses around Natanz nuclear site more 'brittle' than expected: Exclusive analysis," *Breaking Defense*, May 15, 2025, https://breakingdefense.com/2025/05/irans-air-defenses-around-nuclear-site-more-brittle-than-expected-exclusive-analysis/.
10 Sam Lair, "Iran's (Not So) Integrated Air Defenses at Natanz," *Arms Control Wonk*, May 19, 2025, https://www.armscontrolwonk.com/archive/1220441/irans-not-so-integrated-air-defenses-at-natanz/.

If the air defense command and control at Natanz, one of Iran's most sensitive facilities, was representative of the broader system, the CNS analysis indicates it could be easily overwhelmed and struggle to coordinate defensive fires, especially when facing stealth aircraft.

Overwhelming those systems was exactly what the Israeli military did, destroying additional early warning radars in the opening rounds of strikes and proceeding to rapidly establish and hold air superiority for the next 12 days. Videos of Iranian defenses featured anti-aircraft artillery engaging Israeli aircraft, but SAMs were notably absent. All the Iranians had to show for their defensive efforts was a destroyed Israeli drone and an American cruise missile that probably clobbered en route to its target in Isfahan.[11]

After the war Mahmoud Mousavi, deputy of operations for the Artesh (Iran's regular military), in a mea culpa, stated "Some of our air defences were damaged, this is not something we can hide, but our colleagues have used domestic resources and replaced them with pre-arranged systems that were stored in suitable locations."[12] The extent of those stockpiles is unclear, but it is quite clear the quality and composition of Iran's air defenses needs to improve dramatically for it to contest modern air forces.

Ineffective Iranian air defenses hamstrung Iran's missile city concept. Without defenses to cover Iranian TELs and support vehicles as they were flushed from underground missile bases, Israeli aircraft were able to strike the mobile launchers and tunnel entrances, bottling up the remaining missiles. The suppression of the Iranian missile force thanks to Israeli air superiority alleviated the pressure placed on the Israeli missile defense system.

ABMs over Israel

The performance of Israel's missile defenses during the June 2025 war is better understood in context of their defensive efforts during True Promise II, the most successful Iranian missile attack on Israel thus far. The dismal Iranian showing during True Promise I — a strike of approximately 120 ballistic missiles, 30 cruise missiles, and 170 drones on Israel that yielded only about nine ballistic missile impacts — encouraged the Iranians to recalibrate their coercive strategy.[13] This shift was borne out in the strike composition for True Promise II. Rather than including cruise missiles and drones, the Iranians opted to oversaturate Israeli defenses by using larger numbers of more reliable ballistic missiles.[14] The short flight time of medium range ballistic missiles compared to Iran's drones and cruise missiles compressed the tactical warning times Israel had of the strike. While American and Israeli intelligence no doubt provided strategic warning an attack was imminent, the strike composition reduced the tactical preparations the Israeli military could make. The coordination of launches

11 Emmanuel Fabian, "IDF confirms drone shot down over Iran overnight, says no fear of information leaking," *Times of Isreal*, June 18, 2025, https://www.timesofisrael.com/liveblog_entry/idf-confirms-drone-shot-down-over-iran-overnight-says-no-fear-of-information-leaking/; Trevor Ball (@Easybakeovensz), https://x.com/Easybakeovensz/status/1937152922535551017 (accessed August 5, 2025).
12 "Iran says it has replaced air defences damaged in Israel war," *Reuters*, July 20, 2025, https://www.reuters.com/business/aerospace-defense/iran-says-it-has-replaced-air-defences-damaged-israel-war-2025-07-20/.
13 Brad Lendon, "How Israel and allied defenses intercepted more than 300 Iranian missiles and drones," *CNN*, April 14, 2024, https://www.cnn.com/2024/04/14/middleeast/israel-air-missile-defense-iran-attack-intl-hnk-ml/index.html; Martha Raddatz, "Minor damage reported at 2 Israeli air bases," *CBS*, April 14, 2024, https://abcnews.go.com/International/live-updates/israel-gaza-hamas-war/minor-damage-reported-at-2-israeli-air-bases-109221472?id=108860743&entryId=109221472; Farios Tanyos, Cara Tabachnick, and Tucker Reals, "Israel says Iran's missile and drone attack largely thwarted, with "very little damage" caused," *CBS*, April 14, 2024, https://www.cbsnews.com/news/iran-launches-drone-attack-toward-israel-idf-says/.
14 Sam Lair, "Ninety Percent of the Time, the Missile Works Every Time: Iranian Missile Failure Rates During True Promise II," *Arms Control Wonk*, August 22, 2025, https://www.armscontrolwonk.com/archive/1220753/ninety-percent-of-the-time-the-missile-works-every-time-iranian-missile-failure-rates-during-true-promise-ii/.

across Iranian missile bases prevented the Israelis from reloading their interceptor launchers, limiting the number of anti-ballistic missiles available to them. The effect of higher reliability and better coordination can be seen in the larger number of impacts in Israel after True Promise II (44 or 45) relative to the nine in True Promise I.[15]

The Iranian military focused its missiles on a few targets to further stress Israeli defenses. While the Iranians spread their missiles across five areas, the majority were targeted at Nevatim airbase where 32 missiles got through defenses. Only four missiles defeated defenses at Nevatim during True Promise I. This concentration of fire lowered the effectiveness of Israeli missile defenses around Nevatim when compared to other parts of Israel, oversaturating the defenses with more missiles than it could engage.[16] The results of True Promise II show that by crafting larger, focused salvos coordinated to give the Israelis little warning time, the Iranians had devised a strategy for defeating Israeli and US missile defenses.

Interceptor Expenditures

In the wake of True Promise II, the United States deployed Terminal High Altitude Area Defense (THAAD) batteries to Israel. The first was deployed before the end of October 2024, and the second in April 2025.[17] The first battery was deployed south of Kiryat Gat in central Israel.[18] The second was reportedly delivered to Nevatim airbase and is suspected to have been deployed somewhere nearby.[19] The THAAD deployments aimed to compensate for interceptors expended during the first two missile attacks while adding depth to Israel's missile defense system.

The second THAAD battery was deployed less than a month before the war began. While accounts vary widely, it seems that of the approximately 500 missiles Iran fired at Israel during the war, only about 50 to 60 impacts have been identified.[20] However, these figures align with past Israeli air and missile defense performance and the nature of the Iranian missile attacks. This improved performance of Israeli and allied defenses may have been due in part to the THAAD deployments, but it also reflected the smaller and less organized salvos the Iranians were able to generate during the conflict. The Israeli missile defeat strategy, attacking TELs in transit and during launch preparations while sealing Iranian missile cities, impacted Iran's ability to consistently generate large strikes. No strike the Iranians put together during the war was as large as True Promise II.[21] These smaller, less organized strikes were easier for Israeli and American defenses to metabolize than the large, well-coordinated, focused attack seen on October 1, 2024.

15 Sam Lair, "A Fistful of Interceptors: ABM Performance During True Promise II," *Arms Control Wonk*, September 10, 2025, https://www.armscontrolwonk.com/archive/1220797/a-firstful-of-interceptors-abm-performance-during-true-promise-ii/.
16 Sam Lair, "A Fistful of Interceptors."
17 "Statement by Pentagon Press Secretary Maj. Gen. Pat Ryder on the Deployment of a THAAD Battery to Israel," *US Department of Defense*, October 13, 2024, https://www.defense.gov/News/Releases/Release/Article/3934493/statement-by-pentagon-press-secretary-maj-gen-pat-ryder-on-the-deployment-of-a/; Emanuel Fabian, "US said to transfer 2nd THAAD missile battery to Israel as Iran nuclear tensions rise," *Times of Israel*, April 6, 2025, https://www.timesofisrael.com/us-said-to-transfer-2nd-thaad-missile-battery-to-israel-as-iran-nuclear-tensions-rise/.
18 Sam Lair, "Exhaustion and Inflection: Estimating Interceptor Expenditures in the Israel-Iran Conflict [Updated]," *Arms Control Wonk*, June 24, 2025, https://www.armscontrolwonk.com/archive/1220527/exhaustion-and-inflection-estimating-interceptor-expenditures-in-the-israel-iran-conflict/.
19 Fabian, "US said to transfer 2nd THAAD missile battery to Israel as Iran nuclear tensions rise."
20 Decker Eveleth, "The 12 Day War, Part II: Iran's Missile Force Performance," *Hors D'Oeuvres of Battle*, July 22, 2025, https://hors-doeuvresofbattle.blog/2025/07/22/the-12-day-war-part-ii-irans-missile-force-performance/.
21 Ria Reddy et al., "Iran Update Special Report, June 18, 2025, Evening Edition," *Institute for the Study of War*, June 19, 2025, https://understandingwar.org/research/middle-east/iran-update-special-report-june-18-2025-evening-edition/.

Video evidence from the Jordanian photographer Zaid al-Abbadi provides an account of the US and Israeli missile defense effort.[22] At least seven missile defense batteries across Israel were involved during the war. The videos show large numbers of Arrow-3 and THAAD interceptor launches, 34 and 39 interceptors respectively, along with lower levels of shorter-range Arrow-2 use. Since this evidence is only a snapshot of a few moments of the war, these numbers are a floor on interceptor use during the war, not a ceiling. However, they set a verifiable lower bound and complement public officials' comments on the upper bound for interceptor use.

Specifically, the Wall Street Journal reported officials' statements that over 150 THAAD interceptors and about 80 SM-3 interceptors were used during the war.[23] A standard THAAD battery of six launchers can hold 48 interceptors, eight per launcher, indicating the THAADs in Israel went through three batteries worth of interceptors. Similarly, a modern US Arleigh Burke-class guided missile destroyer can carry 96 missiles.[24] If it were equipped with only SM-3 interceptors, forgoing other offensive or defensive armament, nearly the entire magazine of an Arleigh Burke was consumed during the conflict.

Unfortunately, the Israeli military has not shared any information about interceptor expenditures, leaving only open-source video evidence. If the ratio of THAAD use to Arrow-3 use from the Abbadi videos held true for the entirety of the conflict, then as many as 131 Arrow-3 interceptors may have been used. However, that is a low-confidence estimate given the lack of collateral reporting.

Interceptor Costs and Production

The cost of the US and Israeli defense was impressive. THAAD interceptors procured in Fiscal Year 2025 each cost $12.7 million, though the price varies based on the year and the quantity of interceptors being procured.[25] Using the FY25 numbers, the cost of the 39 THAAD interceptors identified in the Abbadi videos is over $495 million. However, based on the reporting that over 150 THAAD interceptors were used, the THAAD cost would be over $1.9 billion.[26]

For the 80 SM-3 interceptors the cost would depend on the variant used, Block-IA, -IB, or -IIA. While no Block-IA interceptors have been procured recently, each cost around $10 million. The cost of the SM-3 Block-IB has fluctuated, perhaps based on the size of the buy.[27] When around 40 interceptors were bought each year, the Block-IB were $8 million each, but rose to over $19 million in recent years as procurement numbers declined.[28] The Block-IIA cost over $28 million each, and only 12 have been procured each year from FY24 through FY26.[29] Given the variance, the 80 SM-3s cost between $640 million and $2.24 billion.

22 Sam Lair, "Exhaustion and Inflection."
23 Shelby Holliday, Anat Peled, Drew FitzGerald, "Israel's 12-Day War Revealed Alarming Gap in America's Missile Stockpile," *Wall Street Journal*, July 24, 2025, https://www.wsj.com/world/israel-iran-us-missile-stockpile-08a65396.
24 "Destroyer Ship Class Info Page," *Commander, Naval Surface Force Atlantic (SURFLANT)*, https://www.surflant.usff.navy.mil/Organization/Operational-Forces/Destroyers/Destroyer-Ship-Class-DDG-Info-Page/ (accessed August 10, 2025).
25 Missile Defense Agency, "Fiscal Year (FY) 2026 Budget Estimates: Defense-Wide Justification Book Volume 2b of 2, Procurement, Defense-Wide (includes O&M and MILCON)," https://comptroller.defense.gov/Portals/45/Documents/defbudget/FY2026/budget_justification/pdfs/02_Procurement/PROC_MDA_VOL2B_PB_2026.pdf (accessed August 18, 2025), 90.
26 Shelby Holliday, Anat Peled, and Drew FitzGerald, "Israel's 12-Day War Revealed Alarming Gap in America's Missile Stockpile."
27 Missile Defense Agency, "Fiscal Year (FY) 2026 Budget Estimates," 118, 121.
28 Missile Defense Agency, "Fiscal Year (FY) 2026 Budget Estimates," 121.
29 Missile Defense Agency, "Fiscal Year (FY) 2026 Budget Estimates," 150.

Table 1.

Interceptor	Unit Cost	Lower Estimate	Higher Estimate
Arrow-2	~$1.5 million	$13 million	$13 million
Arrow-3	~$4 million	$136 million	$524 million
THAAD	$12.7 million	$495 million	$1.905 billion
SM-3	$8-$28 million	$640 million	$2.240 billion
Total		$2.694 billion	$4.682 billion

Arrow interceptor costs are less certain as Israel isn't transparent with its procurement data. However, reporting indicates that each Arrow-3 interceptor costs around $4 million.[30] Based on the 34 verified interceptors used, that adds up to around $136 million — but if the larger, 131 interceptor number is correct, then the Arrow-3 cost could have been as high as $524 million. As for Arrow-2, reporting indicated that at the time the missile was unveiled in 2000, it cost $827,000, just over $1.5 million in 2025 dollars.[31] These numbers suggest the nine Arrow-2s verified to have been used during the war cost over $13 million.

There are a few ways to add this up. Using only the interceptors verified in Abbadi's videos, the cost was $644.5 million. Raising the number of THAAD interceptors to 150 brings the cost to $2.054 billion. Adding SM-3s introduces variance but brings the total to between $2.694 billion and $4.294 billion. Finally, shifting to the high, but low-confidence estimate of Arrow-3 expenditure produces a final, high-end estimate of $3.082 billion to $4.682 billion. A reasonable estimate that includes 150 THAADs and 80 SM-3s ranges from $2.694 billion to $4.682 billion, depending on which SM-3 variant was used and how many Arrow-3s were used. By comparison, the Trump administration judged Operation Rough Rider, the air campaign against the Houthis, to be too expensive, ending the campaign after spending over $1 billion on more than 1,000 airstrikes in 70 waves.[32]

Beyond the high cost, the war raised questions about American interceptor stockpiles and production rates for US missiles and their Israeli equivalents. While the exact size of the THAAD stockpile is unclear, the United States has procured about 650 since 2010.[33] As some of those procured interceptors would have been fired against the Houthis and during tests, it seems safe to say about a quarter of procured THAAD interceptors were fired during the war. Only 37 THAAD interceptors will be procured in

30 Yossi Yehoshua, "Israel signs multi-billion deal to buy more Arrow-3 interceptors to counter Houthi threat," *Ynet*, December 24, 2024, https://www.ynetnews.com/article/rj94ruubyg.
31 Judah Ari Gross and TOI Staff, "Israel, US test upgraded Arrow 2 missile, capable of intercepting incoming nukes," *Times of Israel*, August 13, 2020, https://www.timesofisrael.com/israel-us-successfully-test-arrow-2-missile-defense-system/.
32 Courtney Kube and Gordon Lubold, "Trump operation against Houthis cost more than $1 billion," NBC News, May 8, 2025, https://www.nbcnews.com/politics/national-security/trump-operation-houthis-cost-1-billion-rcna205333; Idrees Ali and Phil Stewart, "US bombing dents but doesn't destroy Houthi threat in Yemen," *Reuters*, May 7, 2025, http://reuters.com/world/us-bombing-dents-doesnt-destroy-houthi-threat-yemen-2025-05-07/.
33 Shelby Holliday, Anat Peled, and Drew FitzGerald, "Israel's 12-Day War Revealed Alarming Gap in America's Missile Stockpile."

FY26.[34] Of course, THAAD production has fluctuated from over 100 interceptors in 2019 to 11 in 2024, yet the expenditure rate in the June 2025 conflict exceeds even the most aggressive production rate by 50 percent.[35] The United States blew through several years of production and around a quarter of its stockpile of THAAD interceptors in less than two weeks of combat.

A similar story is told by the SM-3 numbers. The United States had received 470 SM-3 interceptors by the end of 2024.[36] The stockpile would be smaller as some would have been retired due to age and others used during tests or engagements with Iran and the Houthis. The 80 interceptors used during the war therefore represent 17 percent of all SM-3s ever delivered and a higher share, likely between a quarter and a third, of the existing stockpile.[37]

The SM-3 procurement plan is even leaner than that of THAAD. Since FY24 the US has only procured 12 SM-3 IIAs each year, with 55 additional IBs to be delivered by 2031.[38] As it takes a few years for procured interceptors to be delivered, 71 interceptors will be delivered in 2025 and another 66 in 2026.[39] But, given the decline in procurement numbers, 2025 will likely be the crest of the interceptor wave. Eventually only 12 SM-3s IIAs will be delivered each year.

The 12 Day War expenditure exceeded the largest annual delivery of SM-3 IIAs.

The Israelis do not share data on Arrow procurement or stockpiles, but US officials indicated that by the end of the war Israel was running low on anti-ballistic missiles, husbanding its interceptors.[40] Despite the lack of clarity from the Israelis the broader trend is clear. Defending against roughly 500 Iranian missiles nearly depleted Israeli interceptor stocks and consumed around a quarter of the stockpile and several years' worth of production of two of the most sophisticated US missile defense systems.

Implications

What does the June 2025 conflict suggest about air and missile defenses in future wars? The Iranian air defense experience shows the importance of basing mode design. The missile city concept failed without proper early dispersal of missiles and launchers. Poor air defenses meant that while the tunnels themselves were safe, the TELs were either bottled up inside, unable to leave as entrances were sealed, or hit on the move. This predicament diminished the size and coordination of Iranian retaliatory strikes, undermining their ability to coerce Israel into ending the conflict earlier.

34 Missile Defense Agency, "Fiscal Year (FY) 2026 Budget Estimates," 88.
35 Wes Rumbaugh, "The United States Is Set to Buy More THAAD Interceptors. Is It Enough?," *Center for Strategic and International Studies*, July 16, 2025, https://www.csis.org/analysis/united-states-set-buy-more-thaad-interceptors-it-enough.
36 Wes Rumbaugh, "Did the US Defense of Israel from Missile Attacks Meaningfully Deplete Its Interceptor Inventory?," *Center for Strategic and International Studies*, December 4, 2024, https://www.csis.org/analysis/did-us-defense-israel-missile-attacks-meaningfully-deplete-its-interceptor-inventory.
37 According to Missile Defense Agency budget documents, it appears that 71 SM-3 Block IA interceptors were procured. Those have since been removed from the stockpile. Between those and the 12 SM-3 IBs used during True Promise I, that brings the potential SM-3 stockpile down to about 387 interceptors. Many of those have been used in tests and in defending against Houthi attacks in the Red Sea, though the exact number is unknown. See: Missile Defense Agency, "Fiscal Year (FY) 2026 Budget Estimates," 118.
38 Wes Rumbaugh, "Did the US Defense of Israel from Missile Attacks Meaningfully Deplete Its Interceptor Inventory?"; Missile Defense Agency, "Fiscal Year (FY) 2026 Budget Estimates," 150; "Contracts For May 16, 2025," *US Department of Defense*, May 16, 2025, https://www.defense.gov/News/Contracts/Contract/Article/4189244/.
39 Wes Rumbaugh, "Did the US Defense of Israel from Missile Attacks Meaningfully Deplete Its Interceptor Inventory?"
40 Shelby Holliday, "Israel Is Running Low on Defensive Interceptors, Official Says," *Wall Street Journal*, June 18, 2025, https://www.wsj.com/world/middle-east/israel-is-running-low-on-defensive-interceptors-official-says-fd64163d.

A common observation since the war is that North Korean leader Kim Jong Un must be pleased with his completed nuclear deterrent given what happened to the hedging Iranians.[41] While undoubtedly true, the June 2025 conflict may have created no small amount of unease amongst the North Koreans as well. Though they possess a functioning nuclear deterrent, North Korea's air defenses are as bad if not worse than Iran's. Similar to Iran, North Korea has put much more emphasis on its pursuit of an offensive missile force at the expense of air defenses, though this has changed slightly for North Korea in recent years.[42] The North Koreans probably also rely on Russia for modern SAMs given the recent appearance of a Pantsir system on a North Korean naval vessel.[43]

In a conflict against American and South Korean forces, North Korea's air defenses will confront a more formidable challenge than Iran's, particularly given the mountainous geography of North Korea that complicates detection of low-flying aircraft. As the Iranians demonstrated, waiting out allied strikes in North Korea's underground missile bases deep in the mountains is not a winning strategy. Given the challenge of air defense and the lessons from the Iranian missile cities, the North Koreans could easily conclude they need to disperse their forces from their underground bases early in a crisis and ensure they are the first to fire should a war start. North Korea was already pursuing a strategy along those lines given their production and deployment of hundreds of mobile launchers and pursuit of early warning systems like airborne radars and reconnaissance satellites.[44] However, observing the outcome of the June 2025 conflict has probably entrenched the North Koreans in a forward-leaning posture prone to rapid escalation.

The Israeli and US missile defense experience illustrates how brutal high-intensity regional conflict will be for interceptor magazines. Given the expenditure rates discussed earlier, the 12-Day War raises serious questions about the ability of US and allied forces to defend against the more sophisticated and deeper regional ballistic missile arsenals of China and North Korea. The war suggests defending bases like Guam within the Second Island Chain from China's missile forces will be extremely challenging. According to the most recent China Military Power Report, the People's Liberation Army Rocket Force fields 500 intermediate-range ballistic missiles (IRBMs) on 250 launchers capable of targeting Guam, a similar number of missiles as Iran fired during the war but undoubtedly more sophisticated.[45] Defending against that force

41 Vipin Narang and Panay Vaddi, "The North Korean Way of Nuclear Proliferation," Foreign Affairs, September 5, 2025, https://www.foreignaffairs.com/north-korea/north-korean-way-proliferation; Dasl Yoon and Timothy W. Martin, "US Attack on Iran's Nuclear Program Risks Emboldening North Korea's Kim," *Wall Street Journal*, June 26, 2025, https://www.wsj.com/world/asia/u-s-attack-on-irans-nuclear-program-risks-emboldening-north-koreas-kim-d62402f3.

42 Tianran Xu, "Developments of North Korea's Land-based Air Defense Systems," 38 North, July 19, 2024, https://www.38north.org/2024/07/developments-of-north-koreas-land-based-air-defense-systems/; "DPRK Missile Administration Conducts Firing of New Air Defence Missiles," *Korean Central News Agency*, August 24, 2025, http://kcna.kp/en/article/q/b0788b8e8fcc3bea82219984e-45acce0.kcmsf.

43 Anton Sokolin, "Russia gave North Korea advanced air defenses over Ukraine war support: Report," *NK News*, May 30, 2025, https://www.nknews.org/2025/05/russia-gave-north-korea-advanced-air-defenses-over-ukraine-war-support-report/; "South Korea official says Russia provided anti-air missile to North Korea," Reuters, November 21, 2024, https://www.reuters.com/world/south-korea-official-says-russia-provided-anti-air-missile-north-korea-yonhap-2024-11-22/.

44 Colin Zwirko, "North Korea says it deployed nuclear-capable missiles to South Korean border," NK News, August 5, 2024, https://www.nknews.org/2024/08/north-korea-hands-over-250-tactical-missile-systems-to-units-on-rok-border/; Decker Eveleth, "This Technology Could Be a Game-Changer for North Korea," *Foreign Policy*, May 19, 2025, https://foreignpolicy.com/2025/05/19/north-korea-missile-aircraft-radar-surveillance-technology/.

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would likely demand even more interceptors than were used during the 12 Day War, due to the more advanced nature of the Chinese missile threat and the difficulty of replicating the Israeli missile defeat strategy in the Indo-Pacific context. The Guam missile defense system currently under construction is certainly inadequate to deal with the current and future Chinese IRBM problem. The active defense challenge only gets worse for bases closer to the Chinese mainland as the more numerous Chinese medium-range ballistic missile (MRBM) force comes into play.[46] However, the results of True Promise II against Nevatim suggest passive defenses like aircraft dispersal, aircraft shelters, and building additional runways and takeoff-capable taxiways may be effective countermeasures to long-range conventional missile attacks. Despite absorbing 32 MRBMs, including a direct hit to a hardened F-35I shelter, no aircraft were damaged and only a handful of hangers were damaged or destroyed at Nevatim.[47] These passive measures can help keep an airbase in the fight longer, for less cost, than active defenses.

The same lessons regarding the utility of passive defenses and the problems of defeating massed missile attacks are even more pertinent in the Korean context. The shorter flight times and large number of North Korean short range ballistic missiles may pose an insurmountable challenge to active defenses like THAAD or PAC-3. The delivery of 250 TELs for carrying 1000 Hwasong-11D SRBMs to the KPA in 2024 suggests the scope of the problem and the vast number of interceptors needed to cope with it.

Conclusion

The contrasting Iranian and Israeli experiences of the 12 Day War combine to provide an account of the enduring difficulty of defense in contemporary missile conflict. The fragile and outdated Iranian air defense system enabled a shockingly successful Israeli missile defeat strategy that dramatically curtailed the effectiveness of the Iranian missile force. Nevertheless, US and Israeli defenses were stretched thin and vast numbers of interceptors were needed to defend against Iran's ragged retaliation.

This account augurs poorly for US and allied missile defense efforts against other adversaries, particularly China. Employing a similar missile defeat strategy against China seems infeasible, and defending bases like Guam will require very large numbers of interceptors. If about a quarter of THAAD and SM-3 stockpiles were consumed in less than two weeks of combat against Iran, no doubt a regional conflict against the more advanced People's Liberation Army Rocket Force would consume a much larger share of those stockpiles. As it will be difficult for interceptor production and expenditure rates to keep up with North Korean and Chinese missile production, investing more in passive defenses is a prudent choice. The Israeli experience during True Promise II showed passive defenses like aircraft shelters, dispersal, quick runway repairs, and larger more flexible airbases are relatively cheap tools to reduce the burden on active defenses.

46 "Military and Security Developments Involving the People's Republic of China 2024."
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