

# The Burgeoning North Korea Missile Threat

By Victor Cha and Katrin Fraser Katz

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CSIS hosted a panel of experts—moderated by Victor Cha and featuring Ankit Panda, Joe Bermudez, Sue Mi Terry, and Markus Garlauskas—for a discussion of the impact of the recent surge in North Korea’s missile testing. The group discussed North Korea’s recent provocations and what they mean for its overall capabilities, what to expect next from North Korea, and steps Washington could take to strengthen its position vis-à-vis Pyongyang. The [full video](#) and [transcript](#) are available on the CSIS website.

## *Recent Developments*

**While the world has focused on Ukraine in recent weeks, North Korea has significantly increased the tempo of its missile tests.** During the first year of the Biden administration, the North Korean regime was relatively quiet in both rhetoric and action, perhaps because of the difficulties it has faced amid its Covid-19 lockdown or because it was waiting to see if President Biden might be willing to unilaterally lift sanctions. So far in 2022, however, the regime [has embarked](#) on a systematic and deliberate campaign of weapons testing. Pyongyang has carried out a total of 13 weapons tests, as shown in the table below.

DATE	EVENT
January 5, 2022	Short-range hypersonic missile
January 11, 2022	Short-range hypersonic missile
January 14, 2022	Short-range ballistic missiles
January 17, 2022	Short-range ballistic missiles
January 25, 2022	Short-range cruise missiles
January 27, 2022	Short-range ballistic missiles
January 30, 2022	Intermediate-range ballistic missile

<b>February 27, 2022</b>	Medium-range ballistic missile
<b>March 5, 2022</b>	Medium-range ballistic missile
<b>March 16, 2022</b>	Failed missile test, presumed to be Hwasong-17 ICBM
<b>March 20, 2022</b>	Artillery fire, suspected from multiple rocket launcher systems
<b>March 24, 2022</b>	Modified Hwasong-15 ICBM, claimed by North Korean state media to be the new Hwasong-17 ICBM
<b>April 16, 2022</b>	Short-range projectiles, claimed to be a new tactical guided weapon

Source: “Database: North Korean Provocations,” *Beyond Parallel*, CSIS, <https://beyondparallel.csis.org/database-north-korean-provocations/>.

## What Is the Meaning of These Tests?

**Each of North Korea’s missile tests has gotten Pyongyang closer to its goal of developing a credible, survivable nuclear weapons delivery system that can target the U.S. homeland.** Presumably, Pyongyang hopes that such a capability would both deter the United States from attacking North Korea and sow doubt among U.S. regional allies that Washington would risk one of its own cities to defend them against a North Korean attack. North Korean leader Kim Jong-un laid out his aims in this area **during his remarks** at the Eighth Party Congress of the Workers’ Party of Korea in January 2021. In unusually specific detail, he was very transparent about the goals of North Korea’s weapons development. Kim mentioned research focused on “perfecting the guidance technology for [a] multi-warhead rocket,” working toward “attaining an advanced capability for making a preemptive and retaliatory nuclear strike by further raising the rate of precision good enough to strike and annihilate any strategic targets within a range of 15,000 kilometres with pinpoint accuracy,” and developing “solid-fuel engine-propelled inter-continental underwater and ground ballistic rockets,” which would shorten the response time the United States and South Korea would have to preempt a North Korean missile launch (see more passages from Kim Jong-un’s speech in the appendix).

More recently, at a **military parade** marking the 90th anniversary of the founding of the Korean People’s Revolutionary Army on April 25, Kim Jong-un donned a white military marshal’s uniform and expressed his determination to increase the strength of the country’s nuclear forces “in terms of both quality and scale.” Other elements of the speech seemed to indicate a shift in North Korea’s nuclear doctrine, specifically when Kim noted that “our nukes can never be confined to the single mission of war deterrent” and that the country’s nuclear forces may be used in an “unexpected second mission” if outside forces violate North Korea’s “fundamental interests.” **Weapons displayed** at the parade included the Hwasong-17 (first displayed in October 2020), hypersonic gliding missiles like the Hwasong-8 (tested in September last year), and what seemed to be a new type of solid fuel missile, possibly the Pukguksong-6 (not yet tested). Overall, the event signaled to both internal and external audiences that Kim continues to advance his nuclear and missile programs in line with his January 2021 pledges and has no plans to ease up on his drive in this area.

**Although North Korea has yet to demonstrate all of these technical benchmarks, testing is critical to making progress.** Even failed tests provide crucial information in developing missiles such as the Hwasong-17, which is the largest liquid propellant missile ever built and deployed on a road-mobile launcher. North Korea’s higher tempo of provocations indicates that it is increasingly willing to accept the risks inherent in missile testing—including political risks of backlash from China, the United States, and South Korea as well as risks of failure—in order to strengthen its missile program.

## *What Comes Next?*

In the coming weeks and months, more North Korean missile tests and advances in its program should be expected for a number of reasons:

- Externally, North Korea faces a favorable environment for missile testing, with the United States distracted by the war in Ukraine and China and Russia in closer alignment. This eliminates some of the costs that North Korea would normally face in the wake of missile tests, specifically in the form of condemnation from the UN Security Council or new sanctions, which China and Russia would almost certainly veto in the current context.
- Internally, North Korea faces difficult health and economic conditions that also incentivize testing, as the regime is eager to showcase military advances to boost morale and regime loyalty among the population.

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- Technologically, North Korea no longer requires significant foreign assistance to help with the basics of its program as it did during the Cold War. Pyongyang's needs now consist of components and raw materials that are commercially available on the international market. The technology requirements for fielding an intercontinental ballistic missile (ICBM) or multiple reentry vehicle capability are not cutting edge—it is 1970s technology. North Korea can rely on China and Russia to facilitate sanctions evasion so that it can obtain these materials.
- Lastly, North Korea faces fewer hurdles in terms of precision than the United States. All that Pyongyang needs to do to claim a victory in threatening the United States is demonstrate its ability to strike the homeland, whereas Washington's challenge in striking down incoming missiles has often been referred to as "hitting a bullet with a bullet." Accordingly, from a cost perspective, the capabilities required for North Korea to attain an offensive win are considerably less expensive than those required for the United States to prevail on defense.

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## *What Are the Key Capabilities to Watch For?*

As stated in Kim's January 2021 speech, North Korea's ambitions extend beyond fielding a primitive existential deterrent. There are some key North Korean capabilities to watch for on the horizon, including:

- **Multiple reentry vehicles**, which would allow North Korea to put multiple warheads on a single missile, thereby frustrating U.S. and allied missile defense systems.
- **Smaller and lighter nuclear warheads**, which could be used on a smaller missile or loaded in multiples on a single ICBM that could travel longer distances.

- **Submarine-launched ballistic missiles**, which play a key role in diversifying North Korea’s capabilities (developing the second leg of a potential North Korean triad), even though this program is on a slower development track than the ICBMs.
- **Air-launched nuclear cruise missiles**, which would provide a means for Pyongyang to achieve the complete triad of land-, sea-, and air-based nuclear capabilities, even though North Korea is not yet close to achieving this capability.
- **More launchers**, which challenges U.S. missile defense. According to technical experts, North Korea is just one launcher shy of being able to saturate the existing U.S. national missile defense system. This math assumes that (1) based on recent disclosures and current U.S. plans and capabilities, North Korea has 10 ICBM launchers, and the United States would shoot 4 of its 44 ground-based interceptors at a single North Korean reentry vehicle;<sup>1</sup> and (2) North Korea’s launch, flight, and reentry capabilities are completely reliable (an unrealistic assumption for some). If North Korea is able to deploy countermeasures or multiple guided reentry vehicles, this would further complicate and potentially defeat existing missile defense systems. Deploying additional launchers, however, would delay the saturation challenge, not defeat it.

## *Policy Implications*

There are no easy options for the United States and South Korea to thwart further advances in North Korea’s missile program. Despite the Biden administration’s offer to meet “without preconditions,” North Korea has expressed no interest in talking with the United States in recent months and is likely to continue to avoid negotiations for the rest of 2022, if not longer, as it works toward achieving the technical benchmarks that Kim detailed in the Eighth Party Congress. That said, some steps could help to alter Pyongyang’s cost-benefit calculations in its missile development efforts:

- **Reinvigorate a broad U.S.-South Korea counter-missile strategy.** This would involve detecting North Korean missiles and launchers, defending against those missiles with missile defenses, disrupting North Korea’s network of capabilities that allows them to fire their missiles repeatedly, and destroying the launchers and missiles themselves. To do this, the United States and South Korea would need to invest in and employ a range of capabilities, including sensors; advanced command and control systems; intelligence, surveillance, and reconnaissance technology; and different weapons systems. Such an approach mirrors those that have been initiated in the past and would help the United States and South Korea stay ahead of North Korea’s missile advancement, rather than remaining in a reactive mode.
- **Accelerate the U.S. deployment of additional interceptors.** The United States plans to build out from 44 interceptors to 64 interceptors soon. Although trying to beat North Korea in this “numbers game” is not a winning strategy for the long term, in the short term it would help to fortify U.S. national missile defenses while increasing the credibility of extended deterrence in the region.

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- **Encourage Seoul to continue developing indigenous capabilities to counter missile threats from North Korea**, including South Korea’s version of the Iron Dome. These types of capabilities will help to

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1. A planned reduction to three interceptors would theoretically improve these numbers.

protect South Korean critical infrastructure from North Korean missile barrages without stoking the same level of objections from China that U.S.-deployed systems entail.

- **Increase trilateral U.S.-Japan-South Korea coordination on missile defense.** South Korea has long held the position that it would not integrate trilateral missile defense, but current circumstances warrant reconsidering this stance.
- **Invest in boost-phase interception technology.** Though this type of technology is currently in its nascent stages and involves a lot of operational challenges, it would constitute a new paradigm of missile defense that would address the pacing challenge of North Korea's weapons development. It might also help to avoid threatening China and Russia (though the current missile defense system is focused exclusively on North Korea, Beijing and Moscow think it targets them and have bulked up their own capabilities in response).
- **Shift the focus of diplomacy from North Korea's nuclear program to slowing down or halting its missile testing.** As North Korea inches toward the capacity to overwhelm U.S. national missile defenses, this type of reorientation is becoming more urgent. Pragmatically, for as long as North Korea refuses to talk with the United States, this would mean integrating ideas for possible "carrots" and "sticks" in the missile realm into existing potential roadmaps for nuclear diplomacy. ■

*Victor Cha* is senior vice president and Korea Chair at the Center for Strategic and International Studies (CSIS) in Washington, D.C. *Katrin Fraser Katz* is an adjunct fellow (non-resident) with the CSIS Korea Chair.

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## Appendix

Below are excerpts from Kim Jong-un's remarks on weapons development during the Eighth Party Congress of the Workers' Party of Korea.

- Recalling that the Party Central Committee decided to develop a global strike rocket with more powerful warheads and an improved warhead control system and carried out this historic task by relying on the patriotism and loyalty of national defence scientists, the report affirmed that the new-type gigantic rocket on an 11-axis self-propelled launcher displayed during the military parade in celebration of the 75th founding anniversary of the Party fully demonstrated the ultra-modernity and great striking capability of our nuclear force.
- The national defence science sector developed the super-large MLRS, a super-power attack weapon the world's weaponry field had never known, and proceeded to develop ultra-modern tactical nuclear weapons including new-type tactical rockets and intermediate-range cruise missiles whose conventional warheads are the most powerful in the world.
- The report also noted that in the period under review the sector of national defence scientific research was conducting research into perfecting the guidance technology for multi-warhead rocket at the final stage, finished research into developing warheads of different combat missions including the hypersonic gliding flight warheads for new-type ballistic rockets and was making preparations for their test manufacture.
- The report made public with pride that the standard of the goal in the modernization of medium-sized submarine was set correctly and it was remodeled experimentally to open up a bright prospect for remarkably enhancing the existing subsurface operational capabilities of our navy, that the design of new nuclear-powered submarine was researched and was in the stage of final examination and the designing of various electronic weapons, unmanned striking equipment, means of reconnaissance and detection and military reconnaissance satellite were completed, and that other achievements were made in national defence research of gigantic significance in developing the People's Army into a powerful one with the strongest military muscle in the world.
- It is necessary to develop the nuclear technology to a higher level and make nuclear weapons smaller and lighter for more tactical uses. This will make it possible to develop tactical nuclear weapons to be used as various means according to the purposes of operational duty and targets of strike in modern warfare, and continuously push ahead with the production of super-sized nuclear warheads.
- The report also set a goal of attaining an advanced capability for making a preemptive and retaliatory nuclear strike by further raising the rate of precision good enough to strike and annihilate any strategic targets within a range of 15,000 kilometres with pinpoint accuracy.
- And the tasks were brought up to develop and introduce hypersonic gliding flight warheads in a short period, push ahead with the development of solid-fuel engine-propelled inter-continental underwater and ground ballistic rockets as scheduled, and possess a nuclear-powered submarine and an underwater-launch nuclear strategic weapon which will be of great importance in raising the long-range nuclear striking capability.
- The report also referred to the need to secure the ability of reconnaissance and information gathering based on operation of a military reconnaissance satellite in the near future, and conduct in real earnest the most important research to develop reconnaissance drones and other means of reconnaissance capable of precisely reconnoitering up to 500 km deep into the front.
- Making the military equipment intelligent, precise, unmanned, high-performance and light should be set as the priority target of the munitions industry, and research and development be oriented to this end.