

STATEMENT OF
GENERAL TERRENCE J. O'SHAUGHNESSY, UNITED STATES AIR FORCE
COMMANDER
UNITED STATES NORTHERN COMMAND
AND
NORTH AMERICAN AEROSPACE DEFENSE COMMAND



BEFORE THE
HOUSE ARMED SERVICES COMMITTEE
SUBCOMMITTEE ON STRATEGIC FORCES

12 MARCH 2020

Introduction

Chairman Cooper, Ranking Member Turner, and distinguished members of the Committee: I am honored to appear before you today and to serve as the Commander of U.S. Northern Command (USNORTHCOM) and North American Aerospace Defense Command (NORAD).

Our commands are driven by a single unyielding priority: defending the homeland. In the years following the Cold War, our nation enjoyed the benefits of military dominance as well as geographic barriers that kept our homeland beyond the reach of most conventional threats. Our power projection capabilities and technological overmatch allowed us to fight forward, focusing our energy on the conduct of operations overseas.

However, our key adversaries watched and learned, invested in capabilities to offset our strengths while exploiting our weaknesses, and have demonstrated patterns of behavior that indicate they currently have the capability, capacity, and intent to hold our homeland at significant risk below the threshold of nuclear war. Eroding military advantage is undermining our ability to detect threats, defeat attacks, and therefore deter aggression against the homeland. This is emboldening competitors and adversaries to challenge us at home, holding at risk our people, our critical infrastructure, and our ability to project power forward.

The threats facing our nations are real and significant. The Arctic is no longer a fortress wall, and our oceans are no longer protective moats; they are now avenues of approach for advanced conventional weapons and the platforms that carry them. Our adversaries' capability to directly attack the homeland has leapt forward, and they are engaged in overt, concerted efforts to weaken our national technological, economic, and strategic advantage. To address this reality, our two distinct but complementary commands are taking significant, vigorous steps to ensure

our homeland defense enterprise is ready to deter, detect, and defeat threats now and well into the future.

Today, USNORTHCOM and NORAD stand more united than ever and are laser-focused on our vital mission to defend the homeland. Just as our adversaries have signaled their intent to hold the United States at risk, we are making it equally obvious that an attack against our country is destined to fail and will result in an unacceptable cost to our adversaries. Even so, we must be clear-eyed about the challenges ahead of us and steadfast in our resolve to defend our nation against committed and well-resourced adversaries.

Threats to the Homeland

The strategic threat to the homeland has entered a new era. Key adversaries Russia and China have deployed and continue to advance a range of capabilities to hold the homeland at risk with nuclear, conventional, and cyberspace weapons, believing it to be an effective means of offsetting Western military advantages and limiting our options in a crisis. These adversaries are also increasingly willing to challenge the United States in the international arena and take actions below the level of armed conflict to erode our global influence. While our adversaries seek to avoid a direct military conflict with the United States, their growing assertiveness increases the risk of miscalculation and gives rise to a threat environment more complex and dynamic than we have seen since the end of the Cold War.

Our adversaries have spent the last 30 years observing our global military operations and forming strategies to negate our conventional military advantages, especially the foundational benefits afforded by our strategic deterrent. A key element of our adversaries' strategy is to develop and demonstrate increasing capabilities to hold the homeland at risk below the nuclear threshold and in multiple domains, believing a credible threat to our homeland will undermine

our diplomats' ability to negotiate from a position of strength and degrade our ability to project military force from our homeland into other theaters.

Russia

Over the last decade, Russia has sought to influence the security environment by developing and deploying conventionally armed cruise missiles capable of reaching targets in the homeland. Russia has spent considerable money and effort to develop a new generation of highly precise cruise missiles that Russian leaders believe will be a credible means of threatening unacceptable damage on our homeland during a conflict. Having demonstrated the utility of these weapons during combat operations in Syria, the Russian military is now working to modernize their air- and sea-based launch platforms.

The Russian air force modernized five BEAR H heavy bombers in 2019, according to the country's Defense Minister, upgrading the aircraft's communications and navigation systems and enabling them to launch the new AS-23 cruise missile. The minister claimed that Russia's heavy bomber force conducted 48 air patrols in 2019 "to ensure a military presence in strategically important areas." Several of these flights approached the homeland and were intercepted by NORAD fighters. The Russian air force demonstrated new levels of cooperation with international partners, including the first-ever deployment of BLACKJACK heavy bombers to South Africa in October and an unprecedented combined air patrol with Chinese medium bombers over the Sea of Japan in July. The Russian air force has announced that its goals for 2020 include the modernization of an additional six BEAR-H bombers and a return to Cold War-era readiness levels for its heavy bomber fleet.

The Russian navy also expanded its operations of cruise-missile capable platforms in 2019, both on and below the ocean surface. In October, foreign press reported that multiple

Russian submarines conducted an exercise in the North Atlantic intended to practice penetrating the West's anti-submarine barrier between Greenland and the United Kingdom. Also in October, President Putin oversaw the Grom-2019 strategic command-staff exercise, which featured live launches of advanced cruise missiles by Russia's heavy bombers and its most capable naval platforms like the Severodvinsk multi-role submarine and the Admiral Gorshkov guided missile frigate. Earlier in the year, the Gorshkov deployed to the Caribbean Sea and made a port call in Havana, well within land-attack cruise missile range of the southeastern United States. President Putin announced in December that Russia plans to double its number of cruise missile-capable vessels by 2023.

Meanwhile, 2019 also saw continued expansion of Russia's military infrastructure in the Arctic. Throughout the year, Russia lengthened existing runways and built new ones at multiple airfields in the high north. In September, Russia deployed a Bastion coastal defense cruise missile unit to the Chukotka Peninsula, opposite the Bering Sea from Alaska, for a first-ever training launch from that region. The missile successfully struck a sea-based target more than 200 kilometers away, according to the Russian Defense Ministry. When deployed to the Russian northeast, this system has the capability not only to control access to the Arctic through the Bering Strait, but also to strike land targets in parts of Alaska with little to no warning.

Finally, Russia continues to modernize its strategic nuclear forces, which it views as the ultimate means to guarantee its sovereignty and survival. Russia made significant progress in 2019 on several of the "invincible" weapons that President Putin unveiled to the world during a landmark March 2018 speech depicting Russia's response to U.S. missile defense developments. In April, Russia launched the experimental Belgorod submarine, which is intended to serve as the launch platform for the Poseidon transoceanic nuclear torpedo. Despite a deadly accident in

August, Russia also continued development work on the extremely long-range Burevestnik nuclear-powered and nuclear-armed cruise missile. In December, a Russian general announced that the Kinzhal air-launched ballistic missile had been placed on “experimental combat duty” in the Russian Arctic. Also in December, Russia announced that its first regiment of Avangard-equipped intercontinental ballistic missiles (ICBMs) had assumed alert duty, marking the world’s first operational ICBM armed with a hypersonic glide vehicle payload designed to challenge our missile warning systems.

China

China’s rapid military modernization and efforts to extend its military’s global reach demonstrate a growing willingness to challenge the United States. Of particular concern to USNORTHCOM and NORAD, China is developing many of the same technologies that the Russians have deployed and may seek to hold portions of the homeland at risk with long-range, conventionally armed precision-strike weapons. In a future crisis, China could use these weapons—along with its world-class offensive cyber capabilities—to attack our logistics nodes in an attempt to frustrate our force flows across the Pacific.

In the meantime, China is also investing heavily to improve the survivability and penetrability of its nuclear forces in an effort to guarantee its ability to retaliate following a strategic first strike. Among the novel weapon systems China is testing is an intercontinental-range hypersonic glide vehicle—similar to the Russian Avangard—which is designed to fly at high speeds and low altitudes, complicating our ability to provide precise warning.

Like the Russians, China also continues to invest heavily in the Arctic, determined to exploit the region’s economic and strategic potential as a self-proclaimed “near Arctic” nation. In the last few years, Chinese survey vessels have conducted several deployments to the Bering and

Chukchi Seas, providing familiarity and experience that could eventually translate to Chinese naval operations in the region.

Finally, in the past year we have observed signs of a nascent but growing strategic cooperation between China and Russia—including the combined bomber patrol last July and Chinese participation in multiple Russian exercises.

North Korea

Kim Jong Un has demonstrated the capability to threaten the U.S. homeland with nuclear-armed ICBMs. In 2017, North Korea successfully tested an apparent thermonuclear weapon as well as two ICBM designs capable of ranging most or all of North America—feats only the five permanent members of the UN Security Council had previously achieved.

Following North Korea's last ICBM test in November 2017, Kim declared that the country had completed the research and development phase of its strategic weapons program and would now begin serial production and deployment of these new systems. In the last year, North Korea has tested several new short-range missile systems, demonstrating advancing technologies that could eventually be incorporated into its strategic systems.

During the December 2019 plenary meeting of North Korea's ruling Workers' Party Central Committee, Kim stated it was time for North Korea to take offensive measures to ensure the sovereignty and security of the country and claimed that he would soon unveil a new strategic weapon. While Kim did not specify what this new weapon would be, recent engine testing suggests North Korea may be prepared to flight test an even more capable ICBM design that could enhance Kim's ability to threaten our homeland during a crisis or conflict.

Iran

The Iranian regime has grown increasingly brazen in its strategic competition with the United States, as demonstrated by the ballistic missile attacks on Iraqi military bases hosting U.S. personnel in Iraq in January 2020. While Iran is not currently able to strike our homeland with strategic weapons, it has expended significant resources on ballistic missile and space-launch capabilities and could develop an ICBM capable of ranging the contiguous United States quickly if its leaders chose to do so. In the meantime, Iran retains the ability to conduct attacks in our homeland via its terrorist proxies and its growing cyber capabilities.

Capable Defense—Credible Deterrence

The international security environment and the threats arrayed against our homeland have evolved extraordinarily quickly over a short period of time, and there is every reason to believe this trend will continue for the foreseeable future. Our adversaries have invested heavily in advanced weapons and highly capable delivery platforms, and they have shown indications of their intent to target our homeland if necessary to achieve their strategic objectives. In order to defend against these 21st century threats, our homeland defense enterprise must reflect the fact that the threats to the homeland have expanded beyond the violent extremist threat that led to USNORTHCOM's establishment. Both USNORTHCOM and NORAD have refocused our efforts on deterring and defeating the complex nation-state threats and adversarial strategies that have eroded our military advantage, and our defense priorities should continue to evolve to stay ahead of current and emerging threats identified in the National Defense Strategy.

Our adversaries have the ability to threaten our homeland in multiple domains and from numerous avenues of approach. Whether an attack originates in cyberspace or from the physical approaches to the homeland, we cannot deter what we cannot defeat, and we cannot defeat that

which we cannot detect. In order to effectively defend the homeland, USNORTHCOM and NORAD have developed a Homeland Defense Design (HDD) consisting of three main elements: a layered sensing grid for domain awareness, an adaptive architecture for joint all-domain command and control (JADC2), and new defeat mechanisms for advanced threats, including cruise missiles, ballistic missiles, hypersonic weapons, and small unmanned aerial systems. These three elements are vital to deterring and defeating advanced threats to the homeland, and USNORTHCOM and NORAD are moving with a sense of profound urgency to bring these capabilities into the fight.

Our need to improve our domain awareness begins with developing and integrating advanced sensors capable of detecting and tracking threats no matter where they originate. In order to defend the homeland in all domains, we need a sensing grid with undersea, maritime, land, air, near-space, space, and cyber layers that reach from the seafloor to outer space. These sensors must be able to detect, track, and discriminate advanced cruise missiles, ballistic missiles, hypersonics, and small unmanned aerial systems at the full ranges from which they are employed. The sensors must also detect and track the platforms—aircraft, ships, and submarines—that carry those weapons. A robust and resilient space layer is increasingly critical to provide the earliest possible detection and fidelity of data required.

Stovepiped transmission of data from non-compatible sensors presents a significant impediment to our ability to defend against advanced threats. To overcome this issue, we need a robust architecture for JADC2 to effectively gather data from a myriad of sensors across all domains and share it seamlessly. The architecture must facilitate rapid data fusion, processing, and analytics to feed decision makers at all levels with accurate, decision-quality information at the speed of relevance. Data from any sensor should feed any defeat mechanism, and rapid data

fusion and analysis should provide faster, more precise solutions to all shooters. This architecture will facilitate high-tempo decision cycles for agile, resilient, redundant, and joint command and control. By leveraging a cloud architecture, big data analytics, edge computing, artificial intelligence, and machine learning, this network should sense a threat from one node and engage it precisely and expeditiously from another across vast distances and across all domains.

Finally, we require new defeat mechanisms for cruise missiles, ballistic missiles, hypersonics, and small unmanned aerial systems. As adversary threat systems, employment doctrine, and operational competencies become more numerous, multi-modal, and complex, our current defeat mechanisms will become increasingly challenged. Additionally, the cost ratio of adversary threat missiles to our missile defeat mechanisms is not in our favor. We must flip the cost ratio back in our favor with deep magazine, rapid fire, and low-cost defeat mechanisms.

Homeland Defense in the Digital Age: Leveraging American Ingenuity

Given the number and complexity of threat systems arrayed against the homeland today, we cannot afford the prohibitive costs or extensive time required to develop high-end, custom built, stove-piped systems provided through current acquisition practices. Instead, USNORTHCOM and NORAD have fundamentally changed how our commands engage with defense and commercial industry, and we are proactively seeking out and collaborating with private-sector partners who offer innovative and viable solutions to our most immediate challenges.

Specifically, our commands are collaborating with large and small companies from the commercial tech sector in order to leverage emerging technologies and digital-age approaches with potential homeland defense applications. Under this iterative approach, our commands and our commercial partners have developed a common understanding of our shared challenges and

opportunities over time. In turn, we are allowing our nation's innovators to apply their expertise and propose advanced, innovative solutions using new but proven technology that can be rapidly incorporated into the homeland defense ecosystem in order to improve our domain awareness, JADC2 architecture, and defeat mechanisms.

We are also adapting and evolving how we work with traditional U.S. defense industry. Rather than prescribing specific materiel solutions to the challenges facing our commands, USNORTHCOM and NORAD are engaged in ongoing two-way dialogue with defense industry innovators to share our perspective on the changing strategic environment, emerging threats to the homeland, and operational requirements. We are working with our industry partners to ensure they understand our specific challenges and needs. In turn, our partners are identifying ways to bring new and existing systems into the homeland defense architecture and provide tailored solutions to our unique challenges.

This approach has already shown game-changing potential. Over the last several months, USNORTHCOM and NORAD have collaborated with defense industry, commercial tech partners, and the military Services on successful field demonstrations of emerging sensor, information fusion, and satellite communications technologies. I am excited and encouraged by the results of these demonstrations, and we will continue to lead these experiments and to solicit innovative proposals from established defense industry and emerging tech partners.

As we defend the homeland against complex threats in all domains, our commands absolutely understand that the status quo is not acceptable and that we must act now to build a capable defense that provides a credible deterrent. In an age of rapidly advancing technology, rising strategic competition, and extraordinary innovation, we simply cannot afford to rely on antiquated technology and outdated approaches. To reverse our eroding military advantage, we

are bringing new thinking, new approaches, and new technologies to bear against our adversaries in order to defend our nation and our way of life.

Thanks to the ingenuity and innovation of American defense industry, our nation has fielded the most advanced and capable military in the world. The technical challenges we currently face are significant, but the extraordinary advancements in global commercial logistics and communications over the last decade are clear evidence those challenges are not insurmountable. USNORTHCOM and NORAD will remain engaged with our defense and commercial industry partners to address our most pressing challenges in ways that are proven, adaptable, and affordable.

Cruise Missile Defense

In concert in the National Defense Strategy, homeland defense is the number one priority and focus of USNORTHCOM and NORAD. Advanced cruise missiles now carried by Russian aircraft and submarines present a growing challenge to our current sensor networks and have the range and accuracy to strike military and civilian targets throughout the United States and Canada. As a result, our two commands are actively working to improve our ability to detect, track, and defeat potential cruise missile attacks against the homeland.

At my direction, USNORTHCOM and NORAD have shifted substantial manpower to this critical effort. With the cruise missile threat at the forefront of our minds, our commands are working closely with industry partners to develop a layered sensing grid, build an adaptive architecture for JADC2, and field advanced defeat mechanisms.

Investments in improving our CMD capabilities are necessary to defend our vital facilities and infrastructure, preserve our national ability to project power abroad, and help to safeguard our citizens and vital institutions. We do not need a force field over the entire nation,

but we also cannot present a soft target. We need a sufficiently capable steady-state defense to present a credible deterrent.

And, because the same cruise missiles that hold targets in the United States at risk also threaten our bases, personnel, and allies overseas, improving our defenses at home will have far-reaching impacts both in the homeland and for our forces, allies, and partners abroad. Aligning our defense investments with the stated priorities of the National Defense Strategy will profoundly improve our ability to defend our citizens and our way of life while strengthening each of the elements of our national power.

This is not the first time that a peer competitor has elected to hold our homeland at risk. Early in NORAD's history, when nuclear-armed Soviet bombers first presented an existential threat to the United States and Canada, our nations faced down that daunting challenge by establishing the Distant Early Warning line of radars and the Semi-Automatic Ground Environment (SAGE) command and control system in less than three years. That stunning achievement demonstrated the power of shared resolve and innovation by our great nations and had an immediate deterrent effect. We hear echoes of that era in today's strategic environment, and while the challenges before us are significant, history makes clear that innovation and resolve will allow us to bolster our strategic advantage.

While I am concerned by the limitations of some of our older sensors, recent advancements show great promise toward improving our ability to detect, track, and defeat advanced cruise missiles. In one key example, USNORTHCOM and NORAD partnered with the U.S. Air Force, U.S. Navy, U.S. Army, U.S. Marine Corps, and industry in December 2019 at Eglin AFB, Florida, on a demonstration that successfully showcased elements of JADC2 and the Advanced Battle Management System for cruise missile defense of the U.S. homeland.

Thanks to the outstanding support and collaboration by each of the Services, we were able to bring air, sea, and land domain forces together to demonstrate technology with significant potential for meeting our most urgent homeland defense requirements. USNORTHCOM and NORAD will continue to build on the momentum established with our Service partners so that we are capable of deterring, detecting, and defeating any potential threat to the homeland.

Specifically, the demonstration combined capabilities from across the Joint Force to detect, track, identify, and simulate the intercept of ground and air-launched subsonic cruise missiles. While still in the early stages of development, these efforts also demonstrated an “every sensor, fused data, best shooter capability” that incorporates machine learning and artificial intelligence to gather and act upon sensor data far more quickly and accurately than ever before.

By demonstrating the potential for these low-cost, multi-domain systems to defend critical targets, USNORTHCOM and NORAD are actively establishing and pushing hard on efforts with innovative industry partners in ways that break down slow-moving stovepipes between warfighters, acquisition agencies, and industry. Together with our partners, USNORTHCOM and NORAD will continue to ensure that we have the means to fulfill our essential homeland defense priorities and outpace the threats to our homeland by actively pursuing the National Defense Strategy objective to establish a national security innovation base that supports DOD operations and sustains security and solvency.

Our commands have taken an aggressive leadership role in identifying and evaluating potential solutions to the significant technical challenges associated with our cruise missile defense mission. Over the summer of 2019, USNORTHCOM and NORAD sponsored a test of over-the-horizon radar (OTHR) capabilities to evaluate their potential application to detect cruise missiles launched against the United States and Canada from the far north. This important test,

conducted in close collaboration with the U.S. Air Force Research Laboratory and Defence Research and Development Canada, allowed USNORTHCOM and NORAD to evaluate the ways in which OTHR can help to provide persistent surveillance of our northern approaches.

The OTHR test, using test arrays in Ottawa, Ontario and at Camp Grafton, North Dakota demonstrated outstanding collaboration between our U.S. Air Force, Canadian military, and industry partners in a shared effort to mitigate the cruise missile threat to the United States and Canada. That same spirit of common commitment was on display in October 2019 during a USNORTHCOM-sponsored homeland defense demonstration at Ft. Carson, Colorado. This event successfully demonstrated the potential for a mesh network and artificial intelligence to detect, identify, and track a cruise missile threat in realistic field conditions.

Ballistic Missile Defense

USNORTHCOM's ballistic missile defense (BMD) mission remains a no-fail mission. North Korea continues to openly threaten the United States with nuclear-capable ICBMs, and it is essential that our ballistic missile defense system continues to provide a reliable and lethal defense against a potential missile attack by North Korea or Iran, should Iran decide to develop ICBM technology.

Fielding modernized radars capable of discriminating between a lethal warhead and the debris, non-lethal components, and potential countermeasures associated with an inbound ICBM remains my top BMD priority. Improved discrimination capability will provide a higher probability of intercept and, therefore will deliver greater confidence in the successful defeat of an inbound nuclear armed re-entry vehicle. Improved persistent discrimination capability is even more necessary given the cancellation of the Redesignated Kill Vehicle (RKV).

While I understand the issues that led to the August 2019 decision by the Missile Defense Agency (MDA) to cancel the RKV, and I ultimately concurred with that course of action, I want to make it clear that I am deeply concerned with the resulting delay in adding to our ground-based interceptor capability and capacity. As we progress toward a next-generation interceptor (NGI) capability, USNORTHCOM remains responsible for defending the homeland from missile attacks. It is therefore necessary to swiftly develop and field a lower-tier missile defense capability as a complement to NGI to intercept current and emerging missile threats. Given the nature of the ballistic missile threat, I am a strong advocate for bringing a layered capability on board for the warfighter well before NGI is fielded.

From a warfighter perspective, a reliable and lethal follow-on system must be fielded as soon as practicable as our adversaries continue to pursue advanced missile technologies to threaten our homeland. I retain confidence in the current ground-based interceptor fleet and the ballistic missile defense system as a whole; however, to remain ahead of emerging threats, the timely fielding of improved discriminating sensor technology and an NGI is crucial. As our adversaries rapidly advance their capability and capacity to threaten the United States, USNORTHCOM is working side-by-side with MDA to ensure that USNORTHCOM's warfighter requirements are met, and I remain in close contact with VADM Hill to ensure our priorities remain aligned.

USNORTHCOM and NORAD's ability to accurately detect, discriminate, and track individual inbound ICBM warheads in the event of a ballistic missile attack from North Korea or potentially Iran is critical to the successful intercept of those weapons. With current and emerging threats in mind, improved terrestrial sensors are a necessary and cost-effective step in the evolution of our missile defense system. However, the urgency of taking steps now to

develop and field a future space-based sensing layer as soon as technology allows cannot be overstated.

As cruise, ballistic, and hypersonic missile threats evolve at an extraordinarily rapid pace, space-based sensors will become a necessity in the near future, and as we have seen with other adversary threat technologies, we cannot wait until a new weapon system is in the field before starting work on new technology to mitigate that threat.

Conclusion

As we enter a new decade, USNORTHCOM and NORAD remain laser focused on defending the homeland. Working side by side with our DOD, federal, industry, and international partners, our commands are committed to protecting our nations, our citizens, and our way of life from threats in all domains. The challenges facing us are daunting, but our adversaries and allies alike should never doubt our resolve.

While the weapons that threaten our homeland today are stealthier and more precise than those we faced during the Cold War, the hard-earned lessons of the past continue to echo today. The spirit of innovation and shared commitment to a common cause that brought our nation safely through previous conflicts will serve us well again during this period of strategic competition and uncertainty. Guided by our history of shared commitment and sacrifice, honored by the trust our citizens have placed in us, and profoundly committed to our sacred responsibility, the men and women of USNORTHCOM and NORAD are ready to deter and defeat any threat.

It is my profound honor to lead the airmen, soldiers, sailors, Marines, Coast Guardsmen, and civilians of USNORTHCOM and NORAD, and on their behalf, I want to thank the Committee for your steadfast support of our essential mission. We Have the Watch.