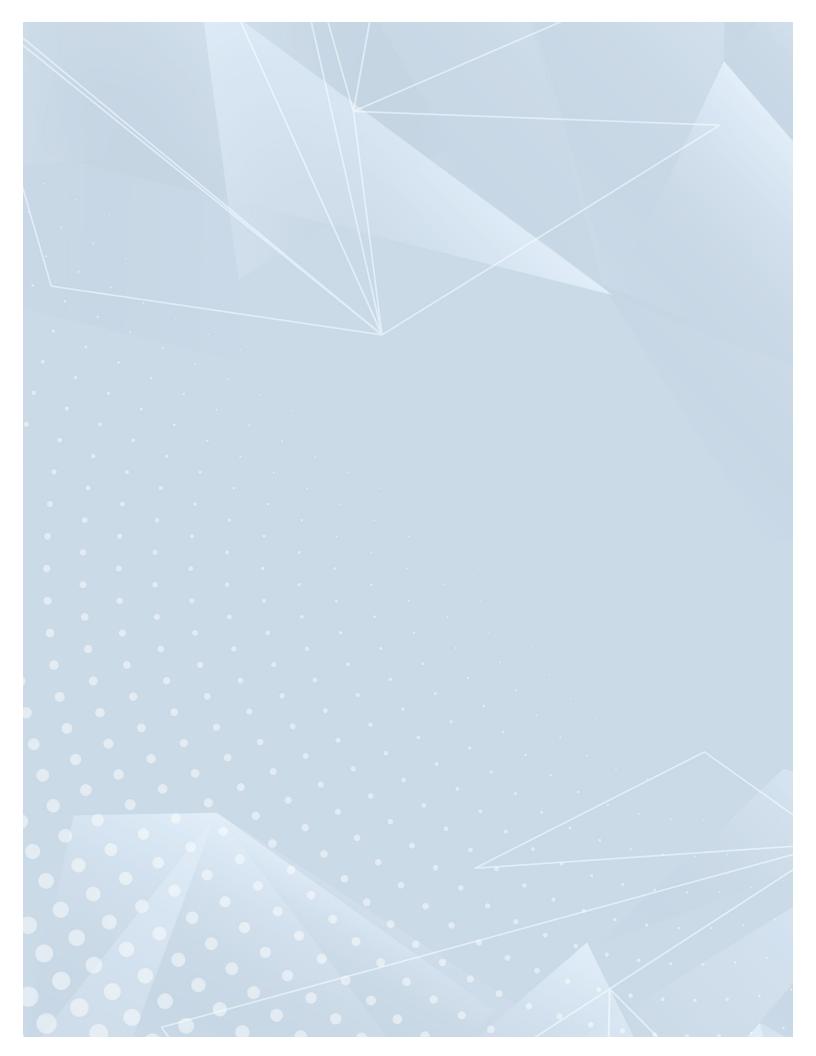


THE DEPARTMENT OF THE AIR FORCE

ARCTIC STRATEGY

ENSURING A STABLE ARCTIC THROUGH VIGILANCE, POWER PROJECTION, COOPERATION, AND PREPARATION





SECRETARY OF THE AIR FORCE WASHINGTON

JUL 2 1 2020

The Department of the Air Force has a long history of Arctic appreciation dating back to the earliest days of U.S. air and space operations. The Arctic region is critical to U.S. national security and homeland defense. With more invested in the Arctic than any other department in the U.S. military, the U.S. Air and Space Forces are prepared to deter adversarial behavior and defend the homeland.

The Department of the Air Force's Arctic Strategy articulates a forward-looking approach for the region, ensuring we are organized, trained, and equipped to advance American strategic interests. A total force effort will be required to maintain regional stability under steady governance. As the Department executes the National Defense Strategy, this Arctic Strategy focuses on four main lines of effort: vigilance, power projection, cooperation, and preparation.

Looking to the future, the Air and Space Forces will collaborate with the Joint Force as well as local and international allies and partners as we invest to protect U.S. sovereignty and national security interests.

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The Department of the Air Force Arctic Strategy

Executive Summary

The Department of the Air Force Arctic Strategy fully supports the 2018 National Defense Strategy (NDS) and implements the 2019 Department of Defense (DoD) Arctic Strategy embracing the DoD's desired Arctic end-state: A secure and stable region where U.S. national interests are safeguarded, the homeland is protected, and nations address shared challenges cooperatively.

The strategy outlines the Department of the Air Force's unique role and optimizes Air Force and Space Force capabilities for the region. The Arctic's increasing strategic importance, coupled with the Services' significant regional investment, requires the Department to have a unified, deliberate, and forward-looking approach, ensuring the Air and Space Forces can compete and defend the nation's interests in the Arctic region.

Residing at the intersection between the U.S. homeland and two critical theaters, Indo-Pacific and Europe, the Arctic is an increasingly vital region for U.S. national security interests. The Arctic's capacity as a strategic buffer is eroding, making it an avenue of threat to the homeland, due to advancements by great power competitors. Additionally, it hosts critical launch points for global power projection and increasingly accessible natural resources. While the DoD analyzes the immediate prospect of conflict in the Arctic as low,¹ the confluence of activities in the region by great power competitors with increased physical access due to receding land ice and sea ice, yields the potential for intensified regional competition as well as opportunities for cooperative endeavors with allies and partners.

The Department of the Air Force contributions to U.S. national security in the Arctic are large, but relatively unknown. Given the Arctic's vast distances and challenges to surface operations, air and space capabilities have long been essential to gain rapid access and provide all-domain awareness, early warning, satellite command and control, and effective deterrence. Offering a solid foundation on which to build and project power across the region, the Department of the Air Force is the most active and invested U.S. military department in the Arctic.²

The strategy identifies the Arctic as a region of strategic opportunity for the Air and Space Forces, Joint Force, allies, and partners. It provides recommendations in light of the Arctic's most significant strategic threats and opportunities, based on Combatant Commander requirements and the Air and Space Forces' missions.

The Department approaches the Arctic with four main lines of effort: Vigilance, Power Projection, Cooperation, and Preparation. The strategy outlines how the Air and Space Forces will organize, train, and equip to provide Combatant Commanders with combat-credible assets capable of conducting operations throughout the Arctic into the future.

^{1.} DoD Report to Congress: Arctic Strategy 2019.

^{2.} DoD Report to Congress: Resourcing the Arctic Strategy 2016.

First, through investments in missile warning and defense, as well as command, control, communications, intelligence, surveillance, and reconnaissance (C3ISR), the Air and Space Forces will defend the homeland by maintaining vigilance.

Second, the Air and Space Forces will utilize unique positioning afforded by bases in locations like Alaska and Greenland to project combat-credible, all-domain air and space power. Infrastructure, focused on thermal efficiency and durability, will be combined with fifth generation aircraft and lethal capabilities to ensure the Air and Space Forces remain agile and capable in the future. Third, strong alliances and partnerships in the Arctic are a strategic advantage for the United States. The strategy outlines ways to enhance cooperation as well as interoperability, operations, and exercises between the United States and its Arctic partners. To uphold the international rules-based order in the Arctic, the Air and Space Forces must leverage the strong defense relationships among Arctic nations and work closely with regional and joint partners.

Finally, the strategy outlines essential training and preparation for operations within this unique environment. To meet this challenge, the Department will renew focus on training, research, and development for Arctic operations, while leveraging the Arctic expertise of the Total Force.



The Air & Space Forces in the Arctic

The Arctic represents a cornerstone of the nation's defense. The Department of the Air Force provides close to 80% of DoD resourcing to the Arctic region.³ Installations across Alaska, Canada, and Greenland include large bases, training complexes, satellite command and control stations, and a constellation of more than 50 early warning and missile defense radars. For reference, page 5 highlights Department of the Air Force Arctic equities.

Geographically, the Arctic region consists of the Arctic Ocean, adjacent seas, and parts of eight nations: Canada, the Kingdom of Denmark (including Greenland), Finland, Iceland, Norway, Russia, Sweden, and the United States.⁴ Demographically, among the millions of Arctic inhabitants, indigenous communities possess millennia of knowledge about the Arctic domain passed down through generations.

Several factors make the Arctic particularly reliant on air, space, and cyberspace power to provide rapid access, reach, and domain awareness. The area above the Arctic Circle (above 66 degrees North latitude) is vast, almost 2.5 times the size of the continental United States. Lacking the climate-moderating effect of the warm Gulf Stream, the North American Arctic hosts a much harsher environment than the European Arctic and significantly less road and maritime infrastructure. Alaska epitomizes this geographical disparity in infrastructure. It is the largest state (twice the size of Texas) covering 586,000 square miles, but offering only 5,600 miles of highway.⁵ The Arctic is a region of immense geostrategic significance and a key location for global power projection. With two large Alaska air bases, Joint Base Elmendorf-Richardson and Eielson Air Force Base (AFB), and other strategic facilities, the Air and Space Forces project power into two critical theaters: Indo-Pacific and Europe. Often unrecognized, Alaska offers the quickest flight access to strategic locations across the Pacific region and western Russia. As evidence of Alaska's strategic location, once the planned F-35 bed-down is complete, Alaska will be home to more advanced fighters than any other location in the world.

As strategic as the Arctic is to power projection, it is equally critical to deterrence and U.S. defense. From an air and space power perspective, it is the shortest distance for adversaries to threaten the homeland with strategic air and missile attacks. The Alaska Radar System and the 50-plus radars that comprise the North Warning System across Canada provide vital early warning for homeland defense and North American Aerospace Defense Command (NORAD). Locations like Clear, Alaska and Thule, Greenland uniquely enable missile warning and defense in addition to space domain awareness, helping USSPACECOM track tens of thousands of objects daily.

From aerial refueling tankers to the Air National Guard's ski-equipped aircraft, the Air Force brings mobility capabilities that provide access to some of the harshest and most remote locations in the Arctic. Meanwhile the Alaska Rescue Coordination Center and affiliated rescue squadrons work closely with partners, including the U.S. Coast Guard, on hundreds of search and rescue missions annually.

^{3.} DoD Report to Congress: Resourcing the Arctic Strategy 2016.

^{4.} The Department of the Air Force Arctic Strategy uses the definition of the Arctic codified at 15 U.S.C. § 4111. The Arctic means all U.S. and foreign territory north of the Arctic Circle and all U.S. territory north and west of the boundary formed by the Porcupine, Yukon, and Kuskokwim Rivers; all contiguous seas, including the Arctic Ocean and the Beaufort, Bering, and Chukchi Seas; and the Aleutian Islands chain.

^{5.} Alaska Department of Transportation & Public Facilities. Department Fast Facts Prepared for Legislative Session 2020.

Department of the Air Force Equities in the Arctic

ALASKA

- > JOINT BASE ELMENDORF-RICHARDSON (JBER):
 F-22, E-3, C-17, C-130, C-12F, Alaska Rescue Coordination Center: HC-130, HH-60
- EIELSON AFB: F-35, F-16, ANG KC-135, Polar Survival School
- > JOINT PACIFIC ALASKA RANGE COMPLEX (JPARC): Airspace & Training Grounds
- CLEAR AFS: Ballistic Missile Early Warning, Space Domain Awareness
- POINT BARROW/NORTH SLOPE: Alaska Radar System (15 radars, 3 part of North Warning System)
- > EARECKSON AS: Missile Defense Radar



» NORAD: North Warning System (~50 radars)

GREENLAND

- > THULE AB: Ballistic Missile Early Warning, Space Domain Awareness
- > RAVEN CAMP: ANG Training for LC-130



SAMPLE OF ARCTIC REGION MILITARY FACILITIES

 UNITED STATES
 NORWAY
 FINLAND
 CANADA
 SWEDEN

 DENMARK/GREENLAND
 RUSSIA
 ICELAND

The Changing Strategic Environment

The United States is an Arctic nation, and a number of trends impact U.S. interests in the complex security environment.

Changing Physical Environment

Changes in the Arctic environment are transforming Arctic ecosystems.⁶ The environment is often cited as the greatest adversary to Arctic operations. Variations in weather and climate forecasting hamper missions and long-term planning for Joint Force needs and capabilities. Thawing permafrost affects infrastructure across the region, including Department of the Air Force hangars and runways. Reductions in single and multi-year polar ice are accelerating the rate of coastal erosion, putting Air and Space Forces' already sparse infrastructure at risk.

Increasing Access & Human Activity

Melting ice, transportation advances, and extraction innovation are exposing resources once thought inaccessible. The Arctic is estimated to harbor over 90 billion barrels of oil reserves, 30% of the world's untapped natural gas, and around one trillion dollars' worth of rare earth minerals.⁷ Extended seasonal access, growth in commercial traffic, and an uptick in tourism increase international competition and the potential need for disaster response.

Great Power Activity in the Arctic

Russia is an Arctic nation. No other country has as much permanent military presence above the 66th parallel. Russia's recent Arctic initiatives include refurbishing airfields and infrastructure, creating new bases, and developing an integrated network of air defense, coastal missile systems, and early warning radars to secure its northern approaches. Further, Russia seeks to regulate maritime traffic on the Northern Sea Route in ways that may exceed its authority permitted under international law. Close to 25% of Russia's gross domestic product comes from the Arctic region. Reflecting this, Russia is expected to continue investing in the region to advance its economy and bolster national identity. The Russian military plays a significant role in securing these interests and may leverage ostensibly defensive capabilities for other purposes. Finally, Russia tightly manages its Arctic messaging to highlight its capabilities and control.

China is not an Arctic nation (its northernmost city, Mohe, shares roughly the same latitude of Philadelphia and Dublin), but it sees the region as important to its long-term economic and security interests. China's Arctic narrative attempts to normalize Chinese presence in the region, enhance polar operating capabilities, and gain a regional governance role. In 2018, China linked its Arctic activities to its One Belt, One Road initiative underscoring its strategic ambition toward the region's vast quantities of rare earth minerals, hydrocarbons, and fisheries.

^{6.} National Oceanic and Atmospheric Administration. Richter-Menge, J., M. L. Druckenmiller, and M. Jeffries: Arctic Report Card 2019.

^{7.} U.S. Geological Survey. Circum-Arctic Resource Appraisal: Estimates of Undiscovered Oil and Natural Gas North of the Arctic Circle 2008.

A secure and stable Arctic region, founded on respect for national sovereignty and the international rules-based order, benefits the United States. Many challenges transcend borders. Arctic nations have historically respected sovereignty and constructively engaged even when interests diverge. In recognition of the Arctic's strategic significance to the defense of the homeland and American national security interests, the region remains a focus for the Department of the Air Force.

DoD Arctic Objectives

The Department of the Air Force will contribute to the achievement of the three objectives set out in the 2019 DoD Arctic Strategy:

- Defend the homeland
- Compete when necessary to maintain favorable regional balances of power
- Ensure common domains remain free and open

Lines of Effort

The Air and Space Forces will enhance vigilance, reach, and power through four coordinated lines of effort:

- 1. Vigilance in All Domains
- 2. Projecting Power through a Combat-Credible Force
- 3. Cooperation with Allies & Partners
- 4. Preparation for Arctic Operations

Vigilance in All Domains

The Air and Space Forces' ability to protect the homeland requires Arctic domain awareness including threat detection, targeting and tracking, communications, and weather forecasting sufficient to build a reliable operational picture.

Missile Defense

Defending the homeland is the first priority for the DoD. The Department of the Air Force is responsible for the majority of the architecture used to detect, track, and engage air and missile threats that could transit the Arctic. These architectural assets include COBRA DANE, which provides real-time missile data, and the new Long Range Discriminating Radar at Clear, Alaska, which provides persistent long-range, mid-course discrimination, precision, and tracking of missile threats. Adding to these capabilities, cooperation with Canada through NORAD is critical to the defense of the northern approaches. NORAD relies on radar systems like the aging North Warning System, a network of aerospace surveillance radars in northern Canada and Alaska, for early detection of adversary air threats.

The DoD's ability to detect threats and defend North America is challenged by rapidly advancing strategic competitors' capabilities. Today's threats have longer range, better precision, and lower radar cross-sections. To counteract evolving threats:

- The Department of the Air Force will enhance its missile defense surveillance system in the northern tier while continuing to work with Canada to identify materiel and non-materiel solutions to the North Warning System.
- The Department of the Air Force will improve domain awareness through new technologies ranging from over the horizon radar to space assets.

Command, Control, Communications, Intelligence, Surveillance & Reconnaissance (C3ISR)

Arctic communications capabilities and capacity above 66 degrees North latitude must meet Joint Force and Air and Space Forces' needs for the region. Environmental and geographic limitations challenge the Air and Space Forces' three main communications capabilities in the region: satellite communications, high frequency radio, and long-haul terrestrial systems. In response to these impediments:

- The Air and Space Forces will work as part of the Joint Force to develop an Arctic communications roadmap that examines current capabilities and emerging technologies.
- The Department will pursue satellite communications options with the Joint Force and ally and partner nations to develop critical communications and data links for operations in the region.
- The Air and Space Forces will work as part of the Joint Force and with interagency partners to ensure adequate C3ISR coverage to match projected activity in the region.



Thule Early Warning Radar

Space Capabilities

Space assets reduce the need for a physical footprint in the demanding Arctic operating environment while supporting ISR, missile defense, satellite command and control, and all-domain awareness. Challenges in the space domain are particularly acute in the Arctic. To operate effectively, the Space Force must overcome Arctic-unique orbital mechanics and electro-magnetic obstacles as well as rising threats from the United States' principal competitors. The Department can no longer assume space superiority. In response:

- The Space Force will work closely with allies, partners, and the private sector to establish mutually beneficial relationships that address common goals in space and the Arctic region.
- The Space Force will develop new technologies and modernize existing assets in the Arctic necessary to ensure access to and freedom to operate in space.
- The Space Force will devise capabilities to mitigate and predict environmental disturbances unique to the Arctic region.

Terrestrial Weather Forecasting & Prediction

Weather in the North American Arctic remains difficult to predict due to terrain, scarce surfacebased sensors, and underdeveloped climate models. Frequent winds, fog, and icing are hazardous to air operations. In response:

The Air and Space Forces will collaborate with interagency partners to address understudied areas and expand meteorological coverage including terrestrial and nascent air and space surveillance systems. The Air and Space Forces will work with interagency partners to forecast changes to the Arctic environment that impact infrastructure and operations.

Power Projection through a Combat-Credible Force

Protecting America's interests in the homeland and abroad entails more than a vigilant defensive posture. The Arctic also affords significant strategic opportunities for all-domain power projection.

Power Projection

With increasing levels of air and space traffic over the Arctic, it is imperative that the region remains a free and open domain. Air and Space Forces must retain the global access guaranteed under international law.

Fundamental to this access, Alaska bases provide air and space power to significant portions of USINDOPACOM and USEUCOM while simultaneously providing defense for North America's northern and western flanks. Recent upgrades to Clear, Alaska's Early Warning Radar enhance the detection of satellites, further enabling space combat power. Additionally, once the planned F-35 bed-down at Eielson AFB is complete, Alaska's unparalleled concentration of fifth generation fighters will present a highly-effective power projection capability.

Supporting military, interagency, and civil Arctic activities, the Department provides year-round access to the Greenland ice sheet via ski-equipped LC-130s. Critically, long range strike aircraft provide reach, combat ability, and a growing sensor capability contributing to regional deterrence, vigilance, and power projection. To ensure power projection:

- The Department will work with the Joint Force to protect and maintain freedom of navigation and overflight.
- The Air Force will provide strategic airlift and critical refueling to both U.S. and partner aircraft operating in the region and provide key mobility to parts of the Arctic unreachable by other means.
- The Air Force will advance recapitalization and explore modernization of existing and emergent polar mobility platforms that are critical for reaching remote areas.



Global Combatant Command Areas of Responsibility

| USAFRICOM | USNORTHCOM |
|-----------|-------------|
| USCENTCOM | USINDOPACOM |
| USEUCOM | USSSOUTHCOM |

Source: NORAD/NORTHCOM. The distances depicted in nautical miles are to select world capitals from Joint Base Elmendorf-Richardson (JBER).

Agile Operations & Logistics

Because the U.S. homeland is no longer a sanctuary, the NDS highlights the need for flexibility and agility in force posture and employment. New concepts to complicate adversary planning include agile

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The Arctic is among the world's most strategically significant regions – the keystone from which the U.S. Air and Space Forces exercise vigilance.

> **BARBARA BARRETT** Secretary of the Air Force

operations, which may involve expanded fixed bases, unoccupied airfields, or portable radar systems. The Arctic supply chain remains complex and expensive, and most operations must provide their own logistical support. In response:

- The Department of the Air Force must adopt Arctic-grade, resilient permanent infrastructure and expeditionary, modular components.
- The Department of the Air Force, with the Joint Force, will develop Arctic basing concepts that complicate enemy targeting systems.

Infrastructure Development

Base infrastructure across the northern tier is a central component to Air and Space Forces' power projection, and the Department maintains significant installations across the Arctic region. To survive in the region, materials need to meet standards including: high thermal efficiency; long-term durability; tolerance to repeated freeze and thaw cycles; and resistance to permafrost degradation. Infrastructure in many austere locations, like Thule, Greenland, has deteriorated due to extreme environmental factors. To address this:

The Department of the Air Force will advocate for investment in installations that match future operational needs.



Cooperation with Allies & Partners

Alliances and partnerships represent key strategic advantages for the United States in the Arctic. The United States maintains strong defense relationships with six of the seven other Arctic nations. Four are NATO Allies: Canada, the Kingdom of Denmark (including Greenland), Iceland, and Norway; and two are NATO Enhanced Opportunities Partners: Finland and Sweden. Ally and partner nations that comprise the Arctic share unique experiences, capabilities, and security interests.



Air Chiefs from Sweden, Finland, U.S., Norway, Denmark sign letter of intent to develop Arctic Challenge Air Exercise in 2017

Interoperability

Interoperability is especially critical in the Arctic region due to terrain, limited access, and the low-density of domain awareness assets. Through the centuries, regional allies and partners have developed concepts, tactics, techniques, and procedures from which the Joint Force can greatly benefit. Allies and partners are on the frontline of deterrence; maintaining their partnership is critical to Arctic domain awareness.

By developing interoperable systems with sister Services as well as allies and partners, the Department of the Air Force demonstrates capability, enhances operational flexibility, and conveys a strong deterrent message. To support interoperability:

The Department of the Air Force will continue building relationships and promoting air and space information sharing with ally and partner nations.

- The Department of the Air Force will learn from ally and partner operating concepts, including advanced F-35 implementation, dispersed basing, and search and rescue techniques.
- The Department of the Air Force will continue working toward shared capabilities, such as hosted payloads, mobility, logistics, and basing.

Exercises

Joint exercises demonstrate cooperation, enhance interoperability, and expand deterrence. In air, maritime, land, space, or cyberspace, exercises mitigate operational uncertainties and build trust with allies and partners. Working with local indigenous communities, who possess unique knowledge about the region, helps Air and Space Forces understand the Arctic environment and enriches training and exercises. To build on these efforts:

The Department of the Air Force will enhance and explore additional training, exercises, wargames, and combined deployments with regional and joint partners.

Expand Collaborative Planning Opportunities

U.S. cooperation with Arctic allies and partners is based on shared values as well as defense, safety, and security goals in the region. Building these relationships counters influence from adversaries, whose actions are not aligned with U.S. interests, and bolsters U.S. national security. The Department of the Air Force must work to highlight shared goals, ensuring a peaceful and stable region where international norms and standards are upheld. To strengthen collaborative international security relationships:

- The Department of the Air Force will look for ways to build upon Arctic operations-focused forums to increase collaboration, information sharing, and trust building.
- The Department of the Air Force will build upon existing relationships with indigenous communities in the Arctic region.
- The Department of the Air Force will cooperate with ally and partner nations as well as Air National Guard units from cold weather states to take advantage of mutual interests and skills.

Preparation for Arctic Operations

Preparation is essential to operate in the Arctic where a lack of training and understanding of the environment can have perilous consequences.

Exercises & Training

The Arctic environment requires specialized training and acclimation by both personnel and materiel. The ability to operate and survive extreme cold weather (down to -60 degrees Fahrenheit) is fundamental for contingency response or combat power generation in many potential operating areas. The Joint Pacific Alaska Range Complex, offering some of the best training airspace in the world, and the Air Force's polar survival school at Eielson AFB represent a strong foundation on which to build. To ensure Arctic operational readiness:

- The Department of the Air Force will assess requirements for Arctic readiness certification, designating personnel with Arctic training and experience in the event of an emergency.
- The Department of the Air Force will work across Services, Joint Staff, and Combatant Commands to enhance integration of Arcticrelated exercises and maximize existing training capacity.

Total Force

A substantial portion of the Department's Arctic expertise resides with the Air Reserve Component. The Alaska Air National Guard conducts civilian and military search and rescue operations with its Guardian Angel personnel, HH-60 helicopters, and HC-130 aircraft. The Air Force Reserve operates F-22s out of Joint Base Elmendorf-Richardson, while the New York Air National Guard operates LC-130s, the DoD's only ski-equipped transport and contingency aircraft. Both the Guard and Reserve play a critical role in supporting space missions at Clear, Alaska and Thule, Greenland. To increase Arctic capability throughout the Total Force:

- The Department of the Air Force will leverage Guard and Reserve expertise to enhance Arctic training and operations.
- The Department will pursue mutual objectives with the National Guard's Arctic Interest Council, a group of Guard units from states with Arctic interests, capabilities, and resources.

Research & Development (R&D)

Foundational to future operations, Air and Space Forces' R&D ranges from research on the space environment and engineering standards to cold-weather materials and radar technology. In the future:

The Air and Space Forces will work as part of the Joint Force along with USNORTHCOM's Arctic Capability Advocacy Working Group to sustain Arctic R&D to address operational needs.

Humanitarian Assistance & Disaster Response (HADR) & Personnel Recovery

Because of the Department of the Air Force's inherent rapid-response and long-range capabilities, Airmen will likely be first to the scene in the event of any Arctic disaster. Through air and space systems that build situational awareness, establish communications, or deliver Arctic survival packages, the Department's substantial capabilities often augment other departments' HADR and personnel recovery missions in the Arctic. To ensure these capabilities in the future:



Eielson AFB Cool School Attendee

- The Air and Space Forces must assess how they deploy capabilities for the mostlikely large-scale disasters and personnel recovery missions.
- To ensure readiness, the Air and Space Forces must prepare for increased activity in the region and practice jointly and multi-nationally, learning from allies and partners.
- The Air and Space Forces will work with Alaskan Command and the U.S. Coast Guard to further develop air-deployable rescue packages and personnel recovery techniques for Arctic conditions and locations.

Conclusion

Since its earliest days, the Department of the Air Force has recognized the strategic importance of the Arctic. The Department will continue to lead as the DoD's most active and invested department in the region – critical as a juncture between the homeland, Indo-Pacific, and Europe. Building on a globally capable force and its current posture in the Arctic, the Department will continue innovating along four lines of effort:

1. Vigilance in All Domains

- 2. Projecting Power through a Combat-Credible Force
- 3. Cooperation with Allies & Partners
- 4. Preparation for Arctic Operations

The Air and Space Forces value the Arctic. As the Arctic's importance increases, so too will the Department of the Air Force's focus on the region.

The Department of the Air Force's Arctic Strategy supports both the NDS and DoD's effort to secure a stable region where U.S. national interests are safeguarded, the homeland is protected, and nations address shared challenges cooperatively.



This strategy is accompanied by a Classified Annex.

Notes

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