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The highlights from the 2018 Arctic Maritime Symposium (AMS)

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Abstract

This Reference Document presents the highlights from the 2018 Arctic Maritime Symposium (AMS), an unclassified conference held 14–16 August 2018 at the Joint Base Elmendorf-Richardson Arctic Warrior Event Center, Anchorage, AK. The purpose of AMS was to bring together military and policy experts in order to discuss current and future challenges of operating in the Arctic region. Discussion panels analysed important questions, such as the status of China and Russia, operational and exercise integration, capabilities to operate in the Arctic, and the need for ongoing presence in the region. The commercial investment and operations were also discussed. The first annual AMS was successful, bringing together a higher number of participants than anticipated, and it is hoped that such meetings will continue. The AMS highlighted the importance of ongoing discussion and joint effort to tackle the challenges surrounding the Arctic maritime operational requirements and opportunities.

Significance to Defence and Security

The 2018 Arctic Maritime Symposium (AMS) brought together operational Arctic leaders and enabled discussion relevant to the concerns, challenges, and opportunities to improve Arctic Domain Awareness, and unity of effort in providing relevant maritime operational presence in the Arctic to secure and defend respective US and Canadian interests.

Résumé

Le présent rapport porte sur les points saillants du Symposium maritime arctique (SMA) de 2018, une conférence sans classification qui s'est déroulée du 14 au 16 août 2018 à l'Arctic Warrior Event Center de la base interarmées Elmendorf-Richardson, à Anchorage, en Alaska. Le SMA visait à réunir experts militaires et spécialistes des politiques pour discuter des défis actuels et à venir que représentent les opérations dans la région de l'Arctique. Les participants à des groupes de discussion ont analysé des questions importantes; par exemple, le statut de la Chine et de la Russie, l'intégration des opérations et des exercices, la capacité de fonctionner dans l'Arctique et le besoin d'assurer une présence continue dans la région. Ceux-ci ont également discuté des opérations et des investissements commerciaux. Couronné de succès, ce premier SMA annuel a rassemblé un nombre de participants plus élevé que prévu et il est à espérer que de telles rencontres continueront d'avoir lieu. Le SMA a permis de mettre en évidence l'importance d'une discussion continue et d'efforts concertés pour relever les défis liés aux besoins opérationnels maritimes dans l'Arctique et aux possibilités qui se présentent.

Importance pour la défense et la sécurité

Le Symposium maritime arctique (SMA) de 2018 a réuni des dirigeants opérationnels de l'Arctique. Le SMA leur a permis de discuter des préoccupations, des défis et des possibilités en vue d'améliorer la connaissance du domaine arctique et d'unir leurs efforts pour assurer une présence opérationnelle maritime adéquate dans cette région afin de protéger et défendre les intérêts respectifs des États-Unis et du Canada.

Table of Contents

Abstract	i
Significance to Defence and Security.	i
Résumé	ii
Importance pour la défense et la sécurité	ii
Table of Contents	iii
1 Introduction	1
2 Highlights from Invited Talks	2
2.1 Arctic Maritime Scene Setter	2
2.2 China and the Arctic	2
2.3 Weather Forecast Office.	3
2.4 Arctic Science and Technology (S&T)	3
2.5 Private and Commercial Investment and Operations	4
3 Highlights from Panel Discussions	5
3.1 Joint and Federal Arctic Maritime Forces	5
3.2 Senior Flag Perspective—Operational and Exercises Integration	5
3.3 Great Power Competition	5
3.4 Maritime Domain Awareness.	6
3.5 Arctic Maritime Capabilities / S&T	6
3.6 International Panel.	7
3.7 Maritime Strategic Outlook and Integration	7
4 Summary	8
References	10
List of Symbols/Abbreviations/Acronyms/Initialisms.	11

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1 Introduction

The 2018 Arctic Maritime Symposium (AMS) was held 14–16 August 2018 at the Joint Base Elmendorf-Richardson Arctic Warrior Event Center, Anchorage, Alaska, United States of America (USA). The symposium brought together military and policy experts with the focus on the current and future operational challenges and considerations in the Arctic region. The primary goals of AMS: *“expand and strengthen relationships between Joint and interagency government organizations, academic and policy institutions, and senior leaders with interests in maritime operations in the Arctic; and improve mutual understanding and appreciation of Arctic maritime operational requirements and opportunities”* (AMS 2018). This document summarizes the key points from AMS.

This Reference Document is organized as follows: the highlights from talks are presented in Section 2, and the key points from panels are outlined in Section 3.

2 Highlights from Invited Talks

This section presents the highlights from invited talks.

2.1 Arctic Maritime Scene Setter

Admiral Paul F. Zukunft, (USCG, Ret), described the importance of the Arctic in the light of rising sea levels, receding ice, lucrative economical resources, national security and contingency planning. For example, rising sea level and coastal erosion pose a problem, both in humanitarian (e.g., people need to be relocated) and monetary (e.g., who pays for it) sense. The receding ice means more traffic in the future and a disaster is inevitable. What is the contingency plan if there is a cruise ship disaster or if there is an oil spill in the Arctic waters? Can help be deployed quickly enough and what are the means of operating in harsh conditions? These are some of the issues that were brought up during the briefing.

2.2 China and the Arctic

The *China and the Arctic* talk was presented by Dr. Elizabeth Wishnick, a Professor in the Department of Politics and Law, Montclair State University, and also a Senior Research Scholar, Weatherhead East Asian Institute, Columbia University. Dr. Wishnick discussed China's interests and role in the Arctic. China built a research station in Svalbard in 2003, completed the First Northern Sea Route voyage in 2012, and the First Northwest Passage voyage in 2017. In 2013, China attained the Arctic Council Observer status and in 2014, Xi Jinping declared China a "polar great power." Interestingly, as of 2014 the world map in China is shown in a different orientation than that typically used in other parts of the world, as a means to strengthen the idea that China is as an emerging dominant world force, with the rightful domain over the Arctic. "*China as a Great Polar Power*" written by Anne-Marie Brady is a recently published book that describes the topic in great detail. Dr. Wishnick touched on five key points why China is so keenly interested in the Arctic. These are:

- status (participation asserts China's reach and economic security);
- presence (small physical installations and expansion in incremental steps assert presence and justify China's status as a "near-Arctic" state);
- voice (China wants to be a player in regional governance and participant in (re)writing the rules);
- leverage (using investments in order to influence Arctic Council members to support China's growing role in the Arctic); and
- wedge tactics (China is putting forth an effort to use political differences within the region and within individual countries to its advantage).

The rising issues include the sovereignty (what takes precedence, the obligation of observers to respect sovereignty, or observers demanding their own rights to be respected), economics (China has substantial resources readily available for Belt and Road Initiatives), environment (China will want to press more firmly to get access to resource exploitation) and political culture (presently, there is no security organization to address emerging threats in the Arctic). There are short- and long-term impacts. The short-term impacts include issues pertaining to icebreaker technology (China already has that in place), mapping Arctic waters, cooperating with Russia, expansion of infrastructure. Some of the long-term

considerations are security issues and consequences of operating in the Arctic, deployment of nuclear-powered submarines and Sino-Russian naval exercises.

2.3 Weather Forecast Office

The briefing was presented by Carven Scott, Weather Forecast Office. Considering that National Oceanic and Atmospheric Administration (NOAA) is under the umbrella of Department of Commerce, one of the goals is to enhance the national economy. Alaska has five days of food supply at any given time. However, it is an important global cargo hub. Unlike other states, Alaska does not have counties. One of the major logistical challenges is the absence of roads in the northern regions. The diminishing ice and climate change have profound effects. There are 14 hurricane level storms per year, and four active volcanoes. In Alaska, due to its unique geographical location, the motto reflecting on building community resiliency in the face of increasing vulnerability to extreme weather is: “*Ready, Responsive, Resilient.*” Mr. Scott oversees a number of service offices, including three Weather Forecast Offices, the National Tsunami Warning Center, the Alaska Pacific River Forecast Center, the Alaska Aviation Weather Unit, and the Anchorage Center Weather Service Unit. The Anchorage Volcanic Ash Advisory Center, one of only nine such centers worldwide. Anchorage is one of the three National Weather Service (NWS) Forecast offices in Alaska and is tasked with 850,000 square miles of marine and 185,000 square miles of public (land) responsibilities. It has 17 terminal aerodrome forecasts as well as Alaskan sea waters sea ice analysis and forecasting. NWS Anchorage is responsible for:

- issuing warnings of hazardous events, weather forecasts, and climate information;
- providing expert information to Emergency Managers and other public sector officials;
- building and maintaining relationships with local and state governments and the media;
- soliciting customer feedback on products and services;
- conducting community awareness and education programs.

The Marine Weather and Coastal Services perform the following:

- forecast and warning services for the Arctic, North Pacific, Bering Sea, and Gulf of Alaska waters;
- coastal storm surge forecasts and warnings;
- spot support for HAZMAT and SAR;
- direct contact with mariners for delivery of critical information and collection of volunteer observations.

Sea Ice Services provide sea ice analysis and forecast focused on Alaska waters, with high resolution, local scale for tactical decisions, where delivery meets user requirements. The service is Geographical Information System (GIS) enabled, with low-bandwidth for MarineFax. The goal is to fully integrate sea ice into coastal and marine services. Stakeholders include subsistence hunters to ice breakers.

2.4 Arctic Science and Technology (S&T)

Dr. Bob McCoy, Director of the University of Alaska Fairbanks (UAF) Geophysical Institute. Alaska has arctic weather, aurora and geomagnetic storms. It is 90% permafrost, and has 54 active volcanoes (and 3 eruptions per year), 43,000 earthquakes per year (magnitude >7 every 2 years), 100,000 glaciers. Warming in the Arctic exceeds global change rate by more than two times and there is loss of multiyear

sea ice (daily motion is tracked using passive microwave satellite). There are numerous challenges, such as sparse data due to limited observations, difficulty to distinguish sea ice from snow and clouds in satellite data, and complex weather patterns. The 2017 set a new annual record in number of earthquakes (43,000). Fifty earthquakes exceeded magnitude 5. Thawing of permafrost presents a hazard. Alaska also has the volcano monitoring and forecasting ash cloud movement service. The eruption of Pavlof in March 2016 produced an ash plume over 600 km in length and resulted in flight cancellations. The research concentrations of the UAF Geophysical Institute are: atmospheric science, remote sensing, seismology, space physics and aeronomy, volcanology, tectonics and sedimentation, and snow, ice and permafrost. The major facilities are: Alaska Volcano Observatory; Alaska Earthquake Center; Alaska Satellite Facility; Poker Flat Research Range; Alaska Center for Unmanned Aircraft System (UAS) Integration; Research Computing Services; Wilson Alaska Technical Center (Infrasound); and High frequency Active Auroral Research Program (HAARP). Some challenges of operating UAS in the Arctic: cold and dark most of the time, poor GPS, poor satellite coverage (Iridium), gravel and icy runways, icing of airframes and payloads, battery life is substantially degraded, and exposed pilots and observers (McCoy, 2018).

2.5 Private and Commercial Investment and Operations

The briefing was presented by Ms. Faith Martineau, Executive Director, Alaska Department of Natural Resources. Shell recently suspended Arctic drilling operations in Alaska despite spending \$7 billion USD, apparently due to relatively small reserves of oil and perceivably minimal profitability potential. However, one of the leading reasons was the public backlash and strong opposition to the drilling venture in the pristine environment. China expressed interest to invest in a \$45–60 billion project to extract gas and build a pipeline. There were recent oil discoveries by Caelus Energy, Oil Search and ConocoPhillips. Lifecycle of a project includes surveying, facilities permitting, drilling production and lease operations. Operations are limited to winter, because tundra cannot be disturbed, posing a major challenge. Serious environmental blunders do occur, as exemplified by a recent case of a third party company (hired by an oil company) that dug a trench through tundra to emplace cables. Digging, thereby disturbing tundra, is strictly prohibited, as it causes irreversible damage. It was not mentioned what the penalties for something like this would be, and if the company will be held liable for their actions. It typically takes 2–3 years to get a permit in Canada, but in Alaska, it could take many years. One of the most extreme cases took 17 years to approve, and by that time, the operational costs have increased drastically. The preparation process for drilling and/or mining operations is a multi-year process. Usually, gravel is emplaced in year one, water sprayed in year two, and the installation is built in year three. The roads are made out of ice, by emptying water bodies and spraying over gravel. A good example is a 130-mile snow road to Smith Bay.

3 Highlights from Panel Discussions

This section presents the highlights from the AMS panel discussions.

3.1 Joint and Federal Arctic Maritime Forces

Moderator: ADM Paul F. Zukunft, USCG (Ret); Panel: VADM Linda Fagan, USCG Commander Pacific Area; Cmdre Angus Topshee, Canadian Navy Fleet Pacific; LtGen Rex McMillian, USMC, Marine Forces North; RDML Douglas Perry, USN, USFF N3; MG Laurie Hummel, Adjutant General, AKNG.

This panel consisted of current operational Arctic leaders, who introduced their missions. The purpose of this panel was to learn from operational (theatre-wise) US and Canadian commanders of forces assigned within an Arctic regional responsibility.

3.2 Senior Flag Perspective—Operational and Exercises Integration

Moderator: Maj Gen Randy “Church” Kee, USAF (Ret); Panel: Brig Gen John Hillyer, USAF, USINDOPACOM J3; RDML Cedric Pringle, Commander, ESG-3; RDML Laura Dickey, USCG, USNORTHCOM J3D; Cmdre Angus Topshee, Canadian Navy Fleet Pacific.

The discussion was focused on the panelists’ current position and/or recent experience, the challenges, concerns, needs and opportunities to improve unity of effort in providing relevant maritime operational presence in the Arctic to secure and defend respective US and Canadian interests.

3.3 Great Power Competition

Moderator: BG Peter Zwack, USA (Ret); Panel: Mr. Mark E. Rosen, J.D., LL.M. Senior VP and General Counsel, Center for Naval Analysis; Dr. Elizabeth Wishnick, Montclair State University; Mr. Jim Townsend, Global Fellow, Polar Institute, Wilson Center, Former Assist Secretary of Defense for North Atlantic Treaty Organization (NATO) and European Union; Dr. Carl Van Dyke, North American Aerospace Defense Command (NORAD) and US Northern Command Geo-Political Adviser.

The panel discussed the major dynamics between contemporary major powers and regions both internationally and in the Arctic context. The main focus was on the US, China, Russia and Allied Europe. Other observer nations to the Arctic Council including Japan, South Korea, India, and Singapore are considered. The panelists focused on their main country and alliance, their equities and challenges, as well as identify potential United States Government (USG) approaches to managing both future challenges and opportunities. The intent of this panel was to assist the audience to better understand the issues and drivers involving these nations and associated regions. Furthermore, the panelists described their perception of their country-region’s top priorities regionally and globally culminating in their equities regarding the Arctic.

3.4 Maritime Domain Awareness

Moderator: Maj Gen Randy Kee, USAF (Ret); Panel: Mr. David Kennedy, Senior Arctic Advisor NOAA; Mr. Don Moore, National Weather Service; CAPT Lee Scruggs, Chief Technology Officer, USCG Intelligence; Mr. Lyston Lea, National Maritime Intelligence Office.

Gaining and retaining Arctic Domain Awareness is essential to enable effective operational forces decision making and reducing associated risk of operational forces in conducting the full spectrum and safety, security and defence mission sets across one of the most challenging maritime environments on the planet. The panelists described their current or/and recent experiences in trying to understand the rapid changes of physical environment of the Arctic Domain, the role of technology to increasing domain awareness in support of commanders and operational decision-making, as well as increasingly complex human dimension of the Arctic Coastal and Maritime regions.

The panel considered three questions (Kee, 2018):

- What are the areas of lagging Arctic Domain Awareness most necessary to address in the near term? For example, is it improving accuracy of weather / physical domain knowledge, communication, understanding human activities, fused information or other areas?
- What are some promising areas of emerging technology that can assist with advancing Arctic Domain Awareness?
- What are priority practical solutions, policy recommendations, and/or institutional agreements needed (between cooperating nations, US Federal government departments, State, Local, Tribal, Industry and/or Academic communities) to effect improved collaboration and effective cooperation? Based on the concept of a “Venn diagram” where do “intersections of opportunity” exist, which can support improved synergies towards achieving Domain Awareness (and reduce needlessly competitive practices)?

3.5 Arctic Maritime Capabilities / S&T

Moderator: Dr. Bob McCoy; Panel: J.D. Horne, Cold Regions Research and Engineering Laboratory (CRREL), USACE; LCDR Joseph Franks, USN NORAD&USNC J8 S&T; CAPT Lee C. Scruggs, Chief Technology Officer, USCG; Mr. Stephen Spehn, Deputy Science Advisor, USEUCOM.

The panelists discussed the current state of Arctic maritime capabilities and challenges for future operations. The focus of the discussions was the required Science and Technology (S&T) investments needed to ensure US and allied forces can operate effectively and efficiently in this rapidly changing Arctic.

The three major questions:

- What are current legacy maritime capabilities and what are some significant S&T challenges?
- What current capabilities and S&T issues are facilitating or hindering current policy?
- What future Arctic maritime capabilities and what S&T should be pursued to prepare for likely future Arctic maritime challenges to operations?

3.6 International Panel

US: Mr. Jon Harrison, Senior Advisor, U. S. Department of State; Norway: Rear Admiral Lars Saunes, Royal Norwegian Navy (Ret), Former Chief of Royal Norwegian Navy; Canada: Commodore Angus Topshee, Canadian Fleet Pacific, Royal Canadian Navy; Netherlands: Commander Senior Grade Michael Hjorth, Danish Joint Arctic Command's Liaison Office, Faroe Islands; Finland: Brigadier General Pekka Toveri, Defence, Military, Naval and Air Attaché Embassy of Finland; Iceland: Minister Hreinn Pálsson, Deputy Chief of Mission, Minister Counselor Embassy of Iceland.

The panelists shared their national perspectives on the Arctic and discussed opportunities for cooperation in the era of great power competition.

3.7 Maritime Strategic Outlook and Integration

Moderator: Maj Gen Randy “Church” Kee, USAF (Ret); Panel: Mr. Mark Rosen, J.D., LL.M., Center for Naval Analysis; ADM Sam Locklear, USN (Ret), Former Commander, United States Pacific Command; Dean Thomas Culora, Center for Naval Warfare Studies, US Naval War College, Council on Foreign Relations; Mr. Shannon Jenkins, U.S. Coast Guard Senior Arctic Policy Advisor; Ms. Sherri Goodman, Senior Fellow, Polar Institute, Wilson Center, Former U.S. Deputy Under Secretary of Defense for Environmental Security.

This was the concluding or the “wrap-up” panel. The panellists described their principal concerns and reasons for optimism for US national interests in the Arctic, and discussed their practical (within policy) as well as new policy recommendations to advance a more effective US presence in the Arctic that supports the peaceful opening of the region aligned to US and Allied interests. The goal of the panel was to provide the symposium participants with an insight into action points that advance new Arctic strategies in development across the US government, ideas for improved collaboration in a diverse array of measures (and estimated resource measures) that support improved Arctic presence, and shaping the Arctic region in accordance with US and allied interests. The panelists also examined concepts that support better regional security, to include practically addressing management of potentially difficult geopolitical flash points such as Bering Straits waterways management.

4 Summary

The Arctic environment is unlike any other, presenting significant challenges and operational difficulties. Most importantly, climate change is rapidly altering the landscape of the Arctic, unveiling resources that were previously considered unviable. It is estimated that the Arctic has sizeable deposits of nickel, copper, gold, uranium, tungsten, coal, diamonds, and reservoirs of oil and natural gas, making this geographical region a high interest target for resource exploitation. The opening of the two trans-Arctic sea routes—the Northern Sea Route and the Northwest Passage—will see more commercial traffic in this region. There are numerous implications and considerations related to the increased activity in the Arctic region, such as, but not limited to management of threatened and endangered species, risk of pollution, effect on indigenous communities and their culture, economy and health. The issue of national security is a serious one, especially with the keen interest in the region coming from Russia and China. China has already built one ice breaker, with the second one underway, and has a fleet of 20,000 fishing vessels.

The three strategic objectives of the Coast Guard in the next 10 years are: (1) improving awareness, (2) modernizing governance, and (3) broadening partnerships. Although the US Coast Guard has operated in the Arctic since 1867, there is an urgent need for six ice breakers to replace the currently in use, but outdated vessels that are well beyond their intended 30-year service life. Only one (Polar Star) of the two Coast Guard ice Polar class breakers is currently operational. The 11 security missions of the US Coast Guard are: marine safety; search and rescue; aids to navigation; living marine resources (fisheries law enforcement); marine environmental protection; ice operations; Ports, Waterways, and Coastal Security (PWCS); drug interdiction; migrant interdiction; defence readiness; and other law enforcement. Preparedness and response present important considerations, as it is only a matter of time before a disaster, such as oil spill or passenger cruise ship accident. Given the remoteness of the area and the harsh conditions, coupled with scarcity of coverage and resources, it is imperative to devise a preparedness plan and evaluate future options and steps. The driving motto: “Collaborate where you can, compete where you must.”

Security is extremely complicated and challenging. At CNA Corporation, both short and long term issues have been the subject of discussion (Rosen, 2018) and a brief on this topic was presented at the Symposium. These include: standards for offshore oil and gas rigs; mandatory liability standards for offshore oil and gas rigs; increased insurance for oil and Liquefied Natural Gas (LNG) carriers and other vessels carrying dangerous cargoes; establishing some standards to regulate Foreign Direct Investment (FDI) flows into the Arctic Region, and establishing an Arctic Development Bank. It should be re-iterated that given sparse infrastructure, harsh and unforgiving environment, and long supply chains, small accidents can easily become major catastrophes. Thus, prevention is the key. However, serious money (and legislation) for infrastructure and project finance is required (Rosen, 2018), and currently, there is no solution in place. One of the policy recommendations by CNA is to create an Arctic Development Code, which would be legally binding, and impose standards for projects that could impact the marine environment, as well as harmonized standards for mines, oil rigs, and refineries, ensure harmonized environmental impact assessments and make records of decisions public.

In terms of Maritime Domain Awareness, NOAA’s vision of the Arctic (Kennedy, 2018) includes: (1) conservation, management, and use based on sound science, and support healthy, productive, and resilient communities and ecosystems; and (2) the global implications of Arctic change to be better understood and predicted. Alexander Hamilton stated in 1787: “*A few armed vessels, judiciously stationed at the entrances of our ports, might at a small expense be made useful sentinels of the laws.*” (Thiesen, 2015).

National Maritime Intelligence-Integration Office (NMIO) is imperative for safety, security and economy.

Solutions should be integrated across all domains, including space, atmosphere, land, surface and sub-surface (Spehn, 2018). However, one of the largely neglected sub-domains is the stratosphere, a layer of the atmosphere situated above the troposphere (from 8–18 km altitude, depending on location, up to approximately 50 km altitude). The stratospheric solutions include sensing, tracking, communications gateway, regional data connectivity, and platforms. Small satellite technologies can also be leveraged.

The NORAD presence at AMS suggests that this could be an important forum for discussing the Arctic domain awareness. Additionally, the renewed interest in defense and security issues in the Arctic attest to the importance of planning and realizing new Arctic based projects, which in turn would also strengthen ties with NORAD.

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List of Symbols/Abbreviations/Acronyms/Initialisms

ADM	Admiral
AKNG	Alaskan National Guard
BG	Brigadier General
Brig Gen	Brigadier General
CAPT	Captain
CNA	CNA is a non-profit research and analysis organization located in Arlington, VA. CNA is not an acronym
CRREL	Cold Regions Research and Engineering Laboratory
ESG-3	Expeditionary Strike Group 3
FDI	Foreign Direct Investment
GIS	Geographical Information System
HAZMAT	Hazardous Material
LCDR	Lieutenant Commander
LNG	Liquefied Natural Gas
LtGen	Lieutenant General
Maj Gen	Major General
MG	Major General
NATO	North Atlantic Treaty Organization
NOAA	National Oceanic and Atmospheric Administration
NORAD	North American Aerospace Defense Command
RDML	Rear Admiral
SAR	Supplied-Air Respirator
UAF	University of Alaska Fairbanks
US	United States
USA	United States of America
USACE	United States Army Corps of Engineers
USAF	United States Air Force
USCG	United States Coast Guard
USEUCOM	United States European Command
USFF	United States Fleet Forces

USG	United States Government
USINDOPACOM	United States Indo-Pacific Command
USMC	United States Marine Corps
USN	United States Navy
USNC	United States National Committee
USNORTHCOM	United States Northern Command
VADM	Vice Admiral

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