

A Warming Arctic and National Security



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Climate Change. Challenges. Solutions

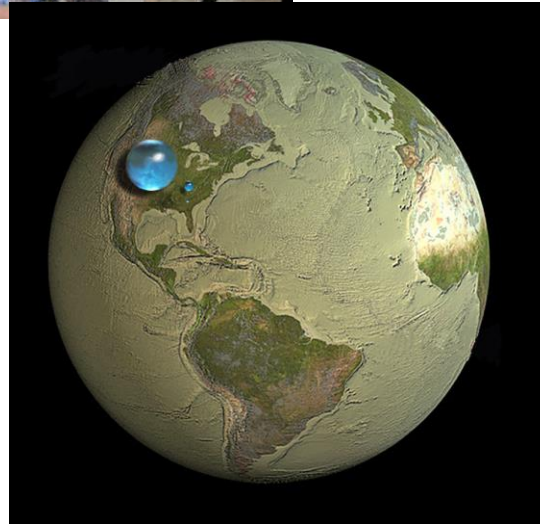
15 February 2014

Why Care About Climate Change?



- It's About *People*

- It's About *Water*



- It's About *Change*



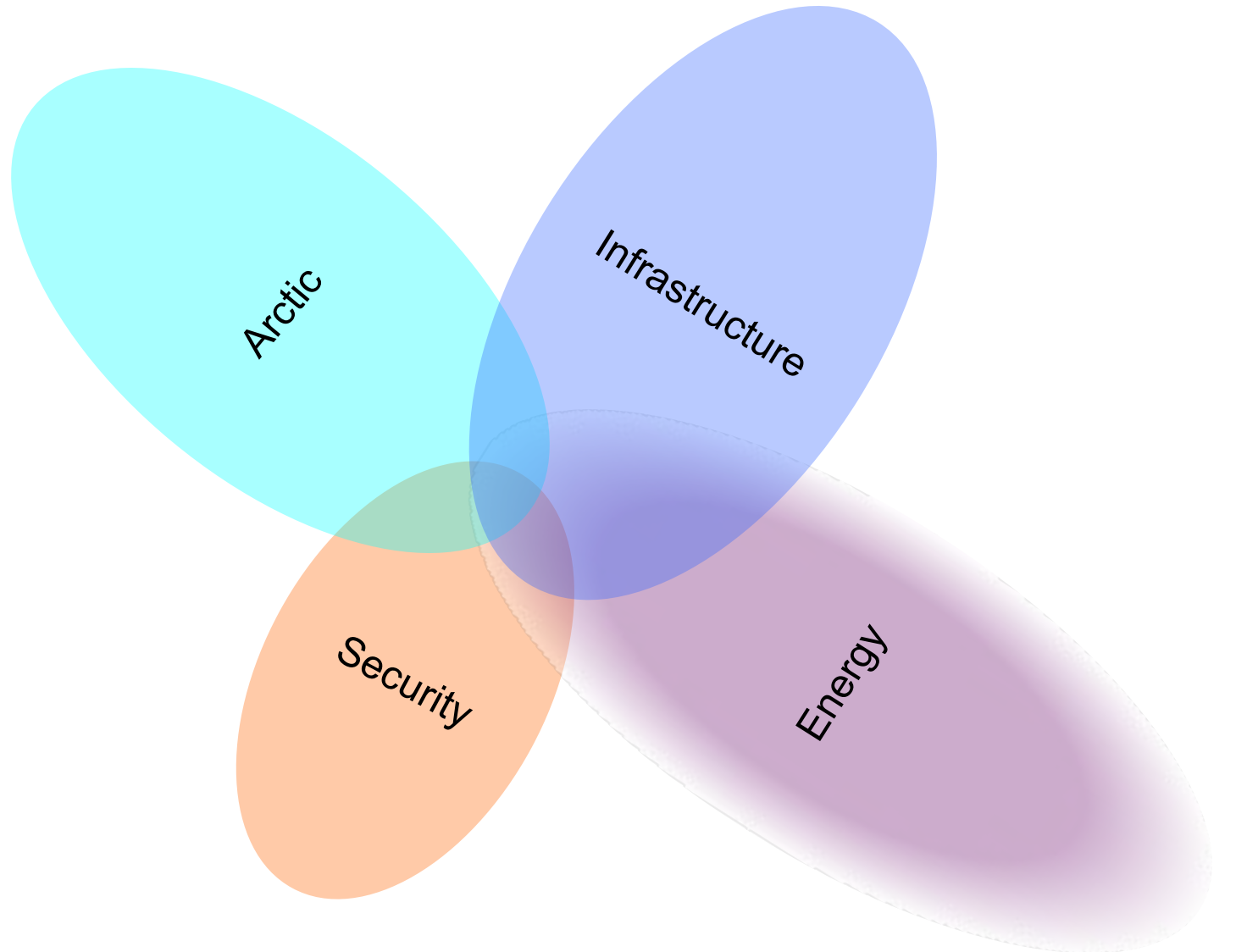
World Population (est.) 10,000 BC - 2,000 AD



Petascale and Beyond



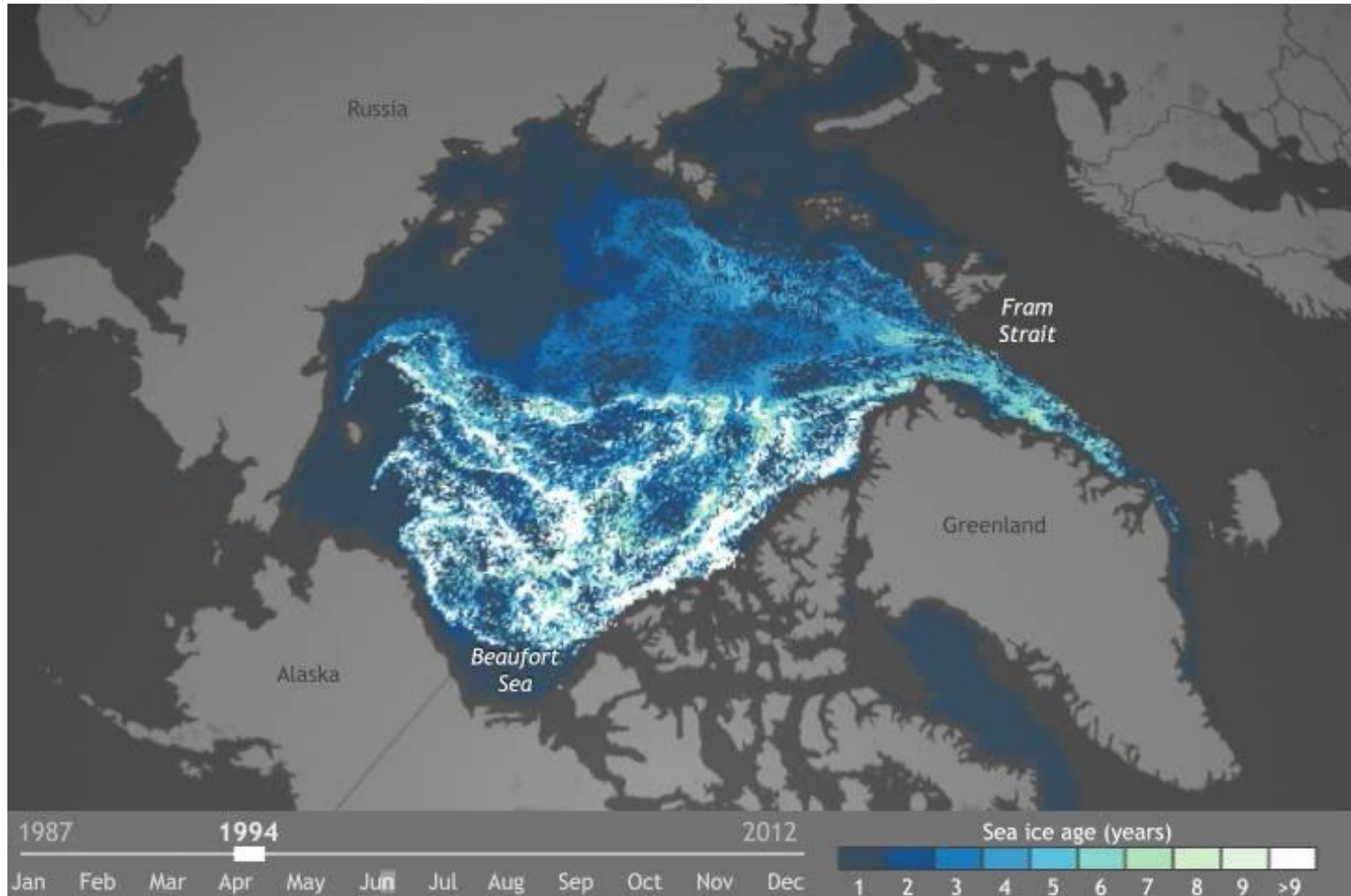
Four Climate Components to Security





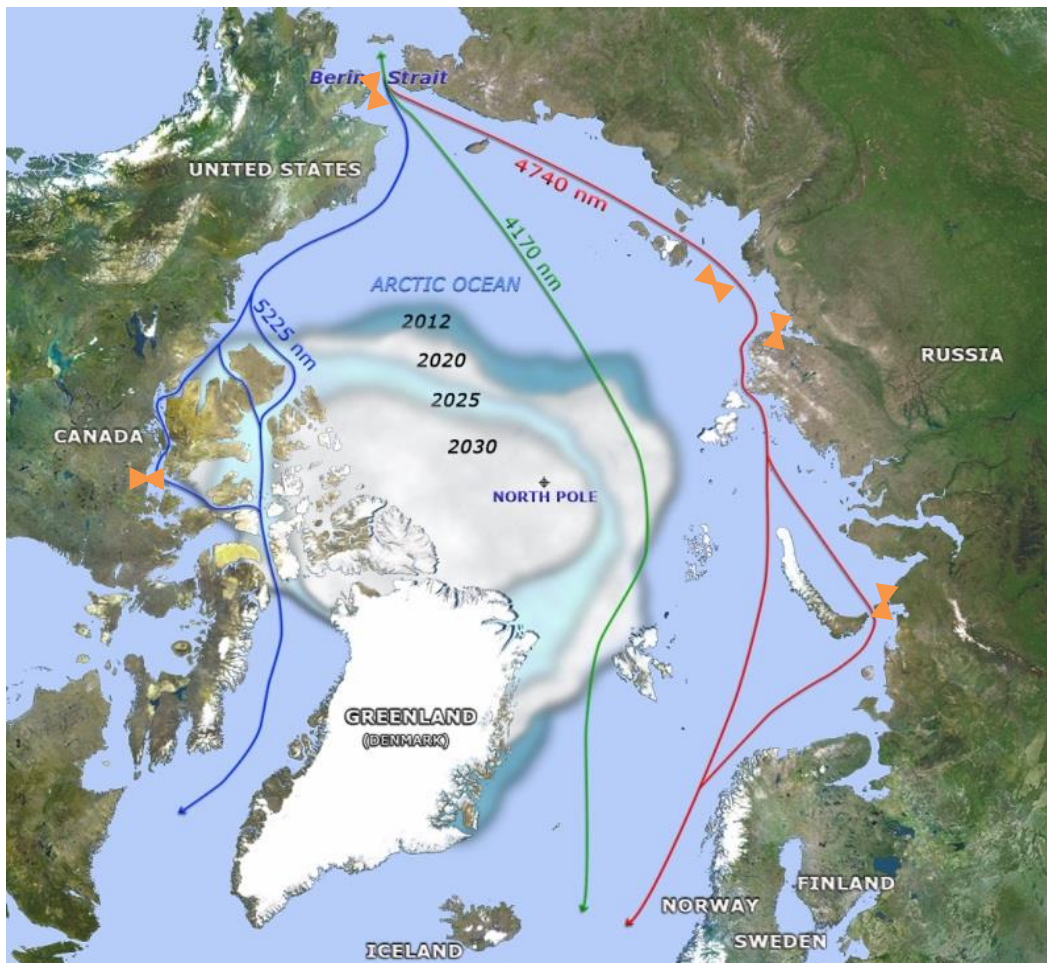
- It's an Ocean
- It's Changing
- It's not a Vacuum

Arctic Sea Ice (1994 – 2012)





Arctic Trade Routes: Today & Tomorrow



Northern Sea Route

2025: 6 weeks open
41' controlling draft



Transpolar Route

2025: 2 weeks open
Deep ocean transit



Northwest Passage

2025: intermittently open
33' controlling draft

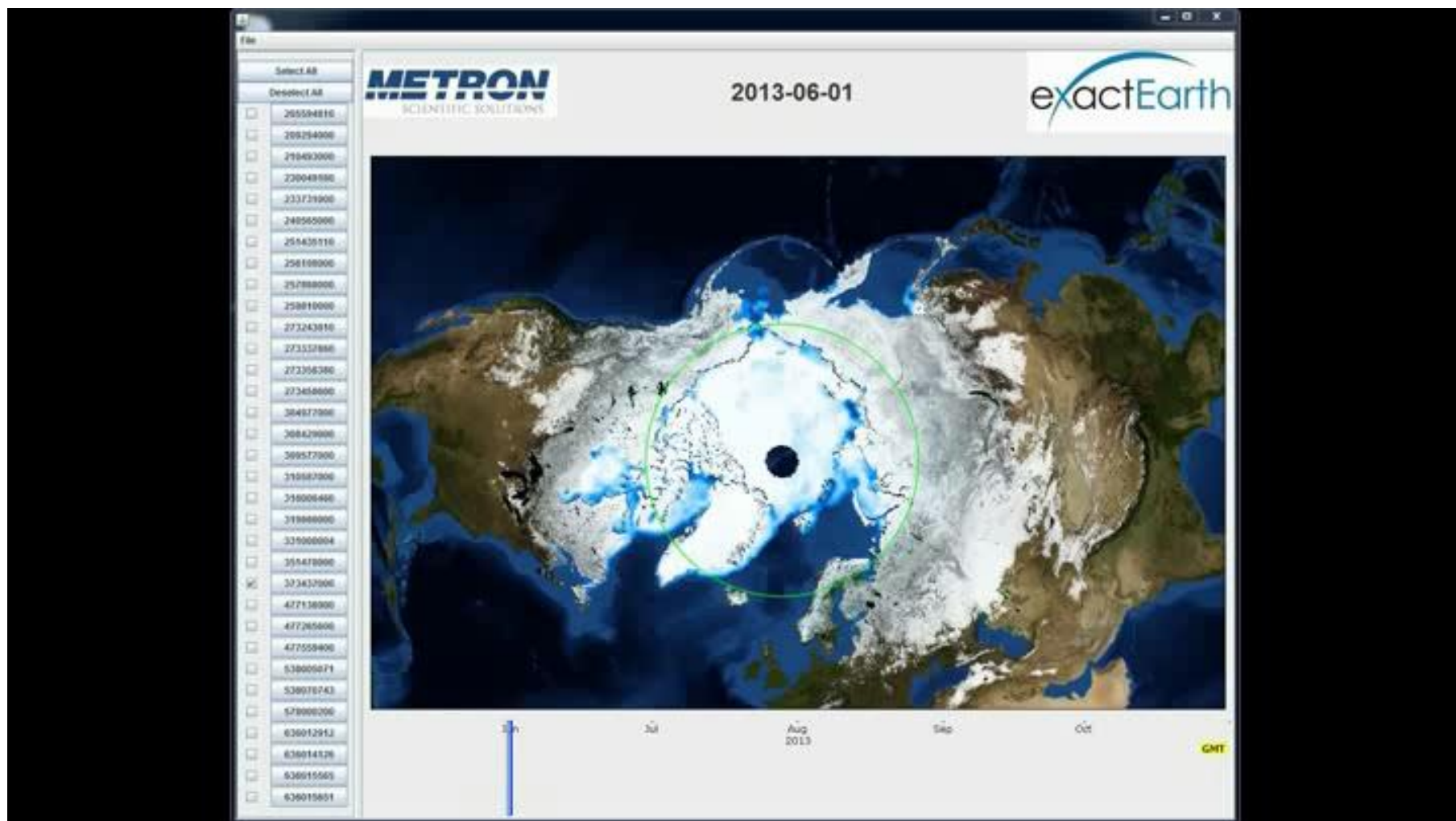
✂ Crossroads

Sea route distances:
Distance from the
Bering Strait to
Rotterdam

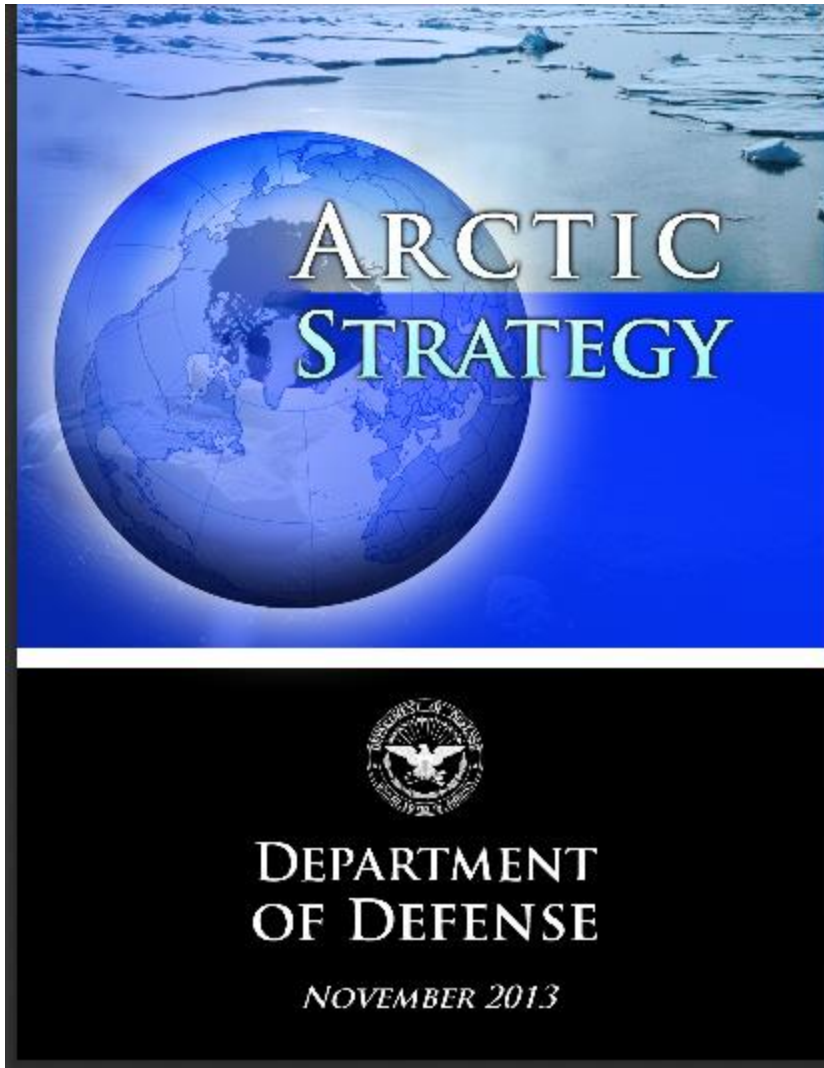
Courtesy: US Navy



M/V NORDIC ORION Summer Cruise 2013



DoD Arctic Strategy



Desired End-States:

- Secure and Stable Region
- Safeguard US National Interests
- Protect US Homeland
- Pursue responsible stewardship
- Work cooperatively



National Arctic Implementation Plan



White House Releases Implementation Plan for the National Strategy for the Arctic Region

Posted by **Patrick Ventrell** on January 30, 2014 at 01:09 PM EST



Today the White House released the Implementation Plan for the National Strategy for the Arctic Region. The Administration solicited input from Alaska Natives, the State of Alaska, Congress, academia, industry and others to develop an Implementation Plan that sets forth the guidelines for Federal Departments and Agencies to execute the National Strategy for the Arctic Region. The Implementation Plan complements and builds upon existing initiatives by Federal, State, local, and tribal authorities, the private sector, and international partners, and also focuses efforts where opportunities exist and action is most needed. It is designed to meet the reality of a changing Arctic environment and uphold our interests in safety and security, protect the environment, and work with international partners to pursue our global objective of combating the effects of climate change as described in the President's Climate Action Plan.

While the Implementation Plan is designed to guide the activities of Federal Departments and Agencies, successful implementation will depend upon active engagement and coordination with Alaska Natives and the State of Alaska. The Implementation Plan will be reviewed on an annual basis to ensure that progress continues to be made in

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YOUR FEDERAL TAXPAYER RECEIPT



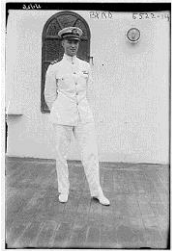
Launch the Receipt

WHITE HOUSE BLOGS

Navy's Arctic Experience

1926

Admiral Byrd's first Over-flight of North Pole



1946

USS Midway tests carrier capabilities



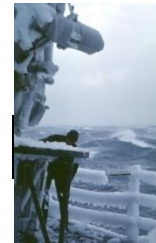
1955-57

Sealift support to construct Distant Early Warning (DEW) line stations



1970's

Cold weather Underway Replenishment experiments



1990's

Submarines continue transits and research



1942-45

World War II: Dutch Harbor, Attu & Kiska



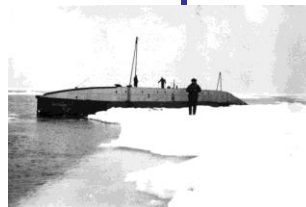
1951-52

Sealift support to enlarge Thule Air Force Base



1958

Nautilus first under-ice transit



1984-85

Arctic undersea exercises



2000's

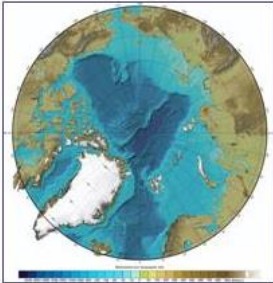
Continuing Naval exercises



Arctic Considerations

Today

Poorly Charted



Limited Infrastructure



Harsh Operating Environment



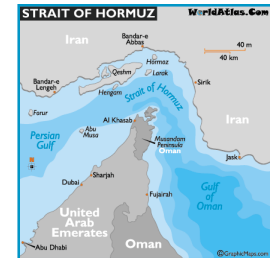
Security Concerns



Transportation Access



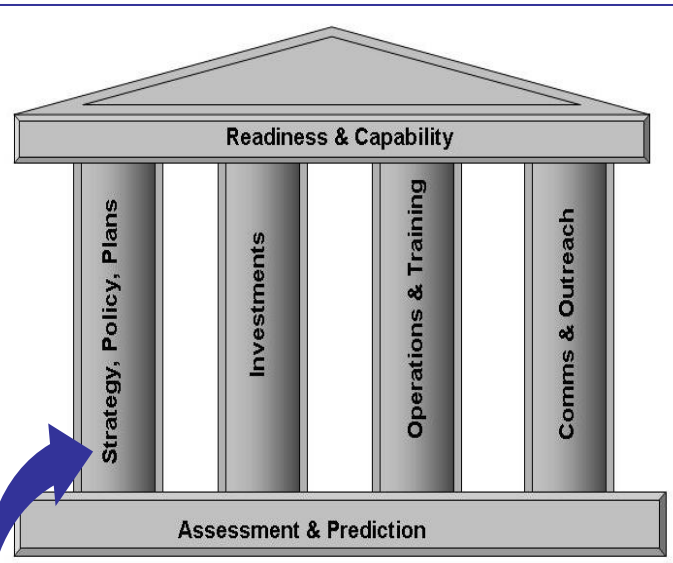
One Scenario



The Arctic is not a vacuum – the changes in the region will also impact Asia

Navy Arctic Roadmap

Framework





Execution

Phase 1 (FY10)

-  Fleet readiness assessment, external studies, strategic implementation plan
-  Advocate for UNCLOS^{***}
-  Monitor Polar SATCOM Program^{***}
-  Arctic TTX & LOE
-  POM-12 investments for air-ocean-ice numerical prediction
-  Innovative Readiness Training (IRT)^{***}
-  Cooperative Navy-NOAA Bering Strait Hydrographic Survey

Phase 2 (FY11-12)

-  POM-14 CBA, NSP, & SPPs address the Arctic
-  Formalize expanded / new cooperative partnerships
-  Arctic SAREX, Arctic Edge, Northern Edge NANOOK^{***}
-  Environmental assessments
-  Interagency partnership for air-ocean-ice numerical prediction
-  ICEX-11
-  Support National Ocean Policy / Marine Spatial Planning Implementation For Arctic^{***}

Phase 3 (FY13-14)

-  Execute POM-14
-  Implement expanded / new cooperative partnerships
-  Arctic UUV operations
-  Update roadmap ICW QDR

Composition



Navy recognized as a valued joint, interagency, & international partner in the Arctic

^{***} Indicates recurring action

Navy Arctic Strategic Objectives

Signed by CNO on 21 May 2010



I. Contribute to safety, stability, & security in the region



IV. Strengthen existing & foster new cooperative relationships in the region

II. Safeguard U.S. maritime interests in the region



V. Ensure Navy forces are capable and ready

III. Protect the American people, our critical infrastructure, & key resources



Towards the desired end state: a safe, stable, and secure Arctic

Arctic Trends Assessment

Commercial activity remains limited through 2030

- Shipping, oil, & gas extraction to grow after 2030
- Fishing to grow but only gradually
- Tourism & maritime research will increase the most



Harsh operating environment will remain the greatest limiting factor

Naval Studies Board Recommendations

THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

NAVAL STUDIES
BOARD



***Support ratification
of United Nations Convention
On the Law of the Sea***



***Address naval coastal
installation vulnerabilities***



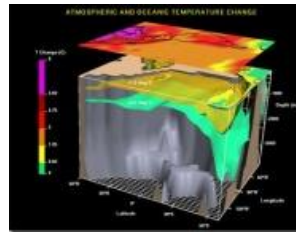
***Prepare for increase
in Humanitarian
Assistance, Arctic missions***



***Address emerging technical
requirements (e.g. polar ops)***



***Address partnership
demands***



***Support research &
development***

Navy action is already underway

UNCLASSIFIED



Arctic Roadmap Implementation Plan

Working Groups

Policy,
Strategy,
Missions, & Plans

Requirements
Operations &
Training

Science &
Technology

Environmental
Observation &
Prediction

Safe Navigation

Maritime Domain
Awareness

Platforms,
Weapons, &
Sensors

C4ISR

Installations &
Facilities

Strategic
Communications &
Outreach

Near-term (present-2020)

- Primarily undersea and air presence
- Surface ship presence in open water
- Specify Requirements
- Investment decisions
 - Targeted increases
- Gain experience and expertise
 - S&T
 - Exchanges
 - Exercises
- Update Doctrine, CONOPS, TTPs
- Strengthen Partnerships

Mid-term (2020-2030)

- Be ready to respond to contingencies and emergencies
- Periodic presence
 - SAR, DSCA, FoN
- Deliver capability
- Gain additional experience and expertise

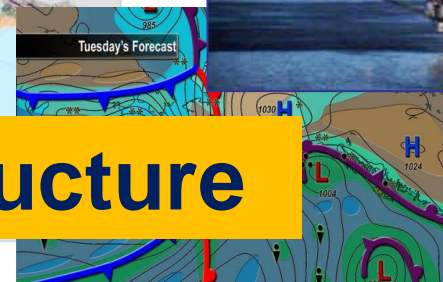
Far-term (FY30 and beyond)

- Operate deliberately for sustained periods as needed
- Manned, trained equipped:
 - Sub, surface, air, space, cyberspace

The roadmap leads to a force that is capable and ready to operate in the Arctic as needed

Required Capacity...

- Ice breakers
- Ice hardened USN vessels
- Observations
- Navigation surveys and infrastructure
- Arctic domain awareness
- Bases for support
- Port(s)
- Energy infrastructure
- Communications

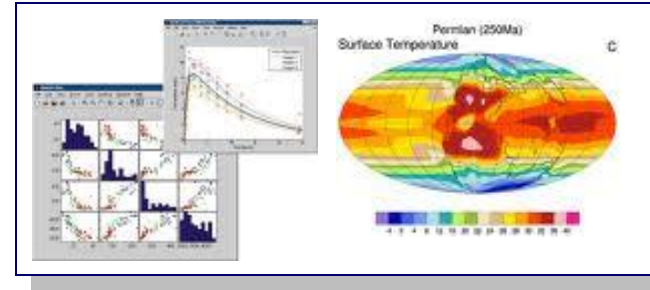


Awareness & Infrastructure

Improving Prediction Capability

Earth System Prediction Capability

Recapitalize aging suite of global atmospheric models



Interagency collaboration

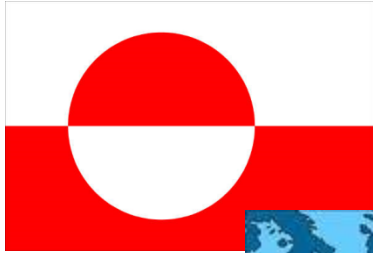


Revolutionary advancement National predictive architecture



Initial Navy investments in today's budget

Unexplored Contingencies



Leadership Counts



Discussion

