USCGC *Polar Star*, Barrow, July 2013, credit USCG

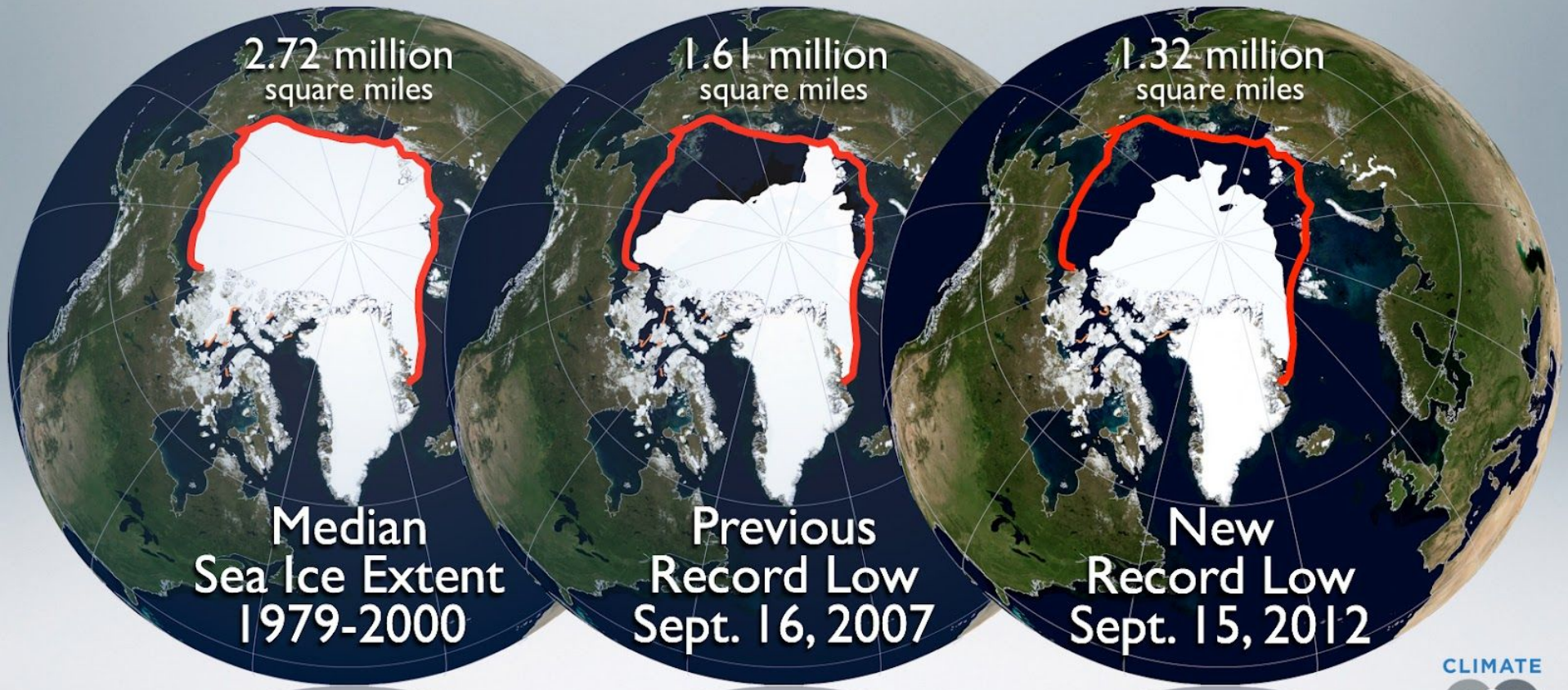
An emerging Arctic

Fran Ulmer, Chair
US Arctic Research Commission
July 16, 2013

Credit: US Arctic Research Commission

ARCTIC OCEAN
BEAUFORT SEA
Arctic Circle
CHUKCHI
SEA
RUSSIA
Colville R.
Porcupine R.
Koyukuk R.
Yukon R.
Tanana R.
CANADA
ALASKA
Yukon R.
Yukon R.
Kuskokwim R.
BERING
SEA
Aleutian
Chain
Credit: US Arctic Research Commission

RECORD LOW ARCTIC SEA ICE



Source: The National Snow and Ice Data Center Sea Ice Index

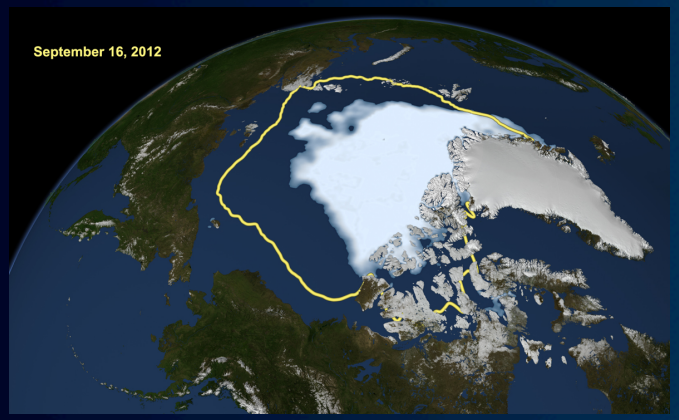
Records are for 5 day running averages

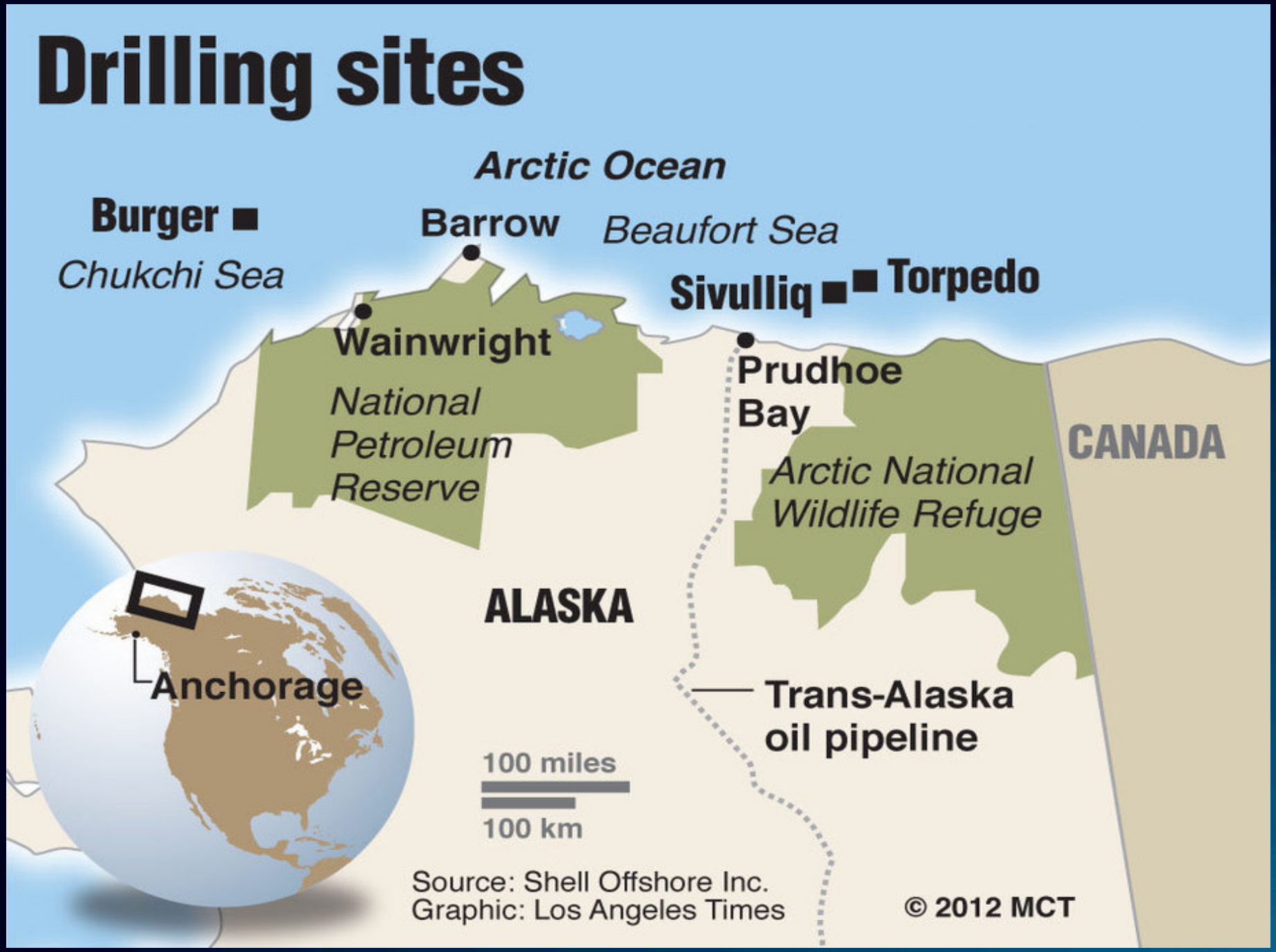
CLIMATE CENTRAL

Economics…major driver for Arctic change

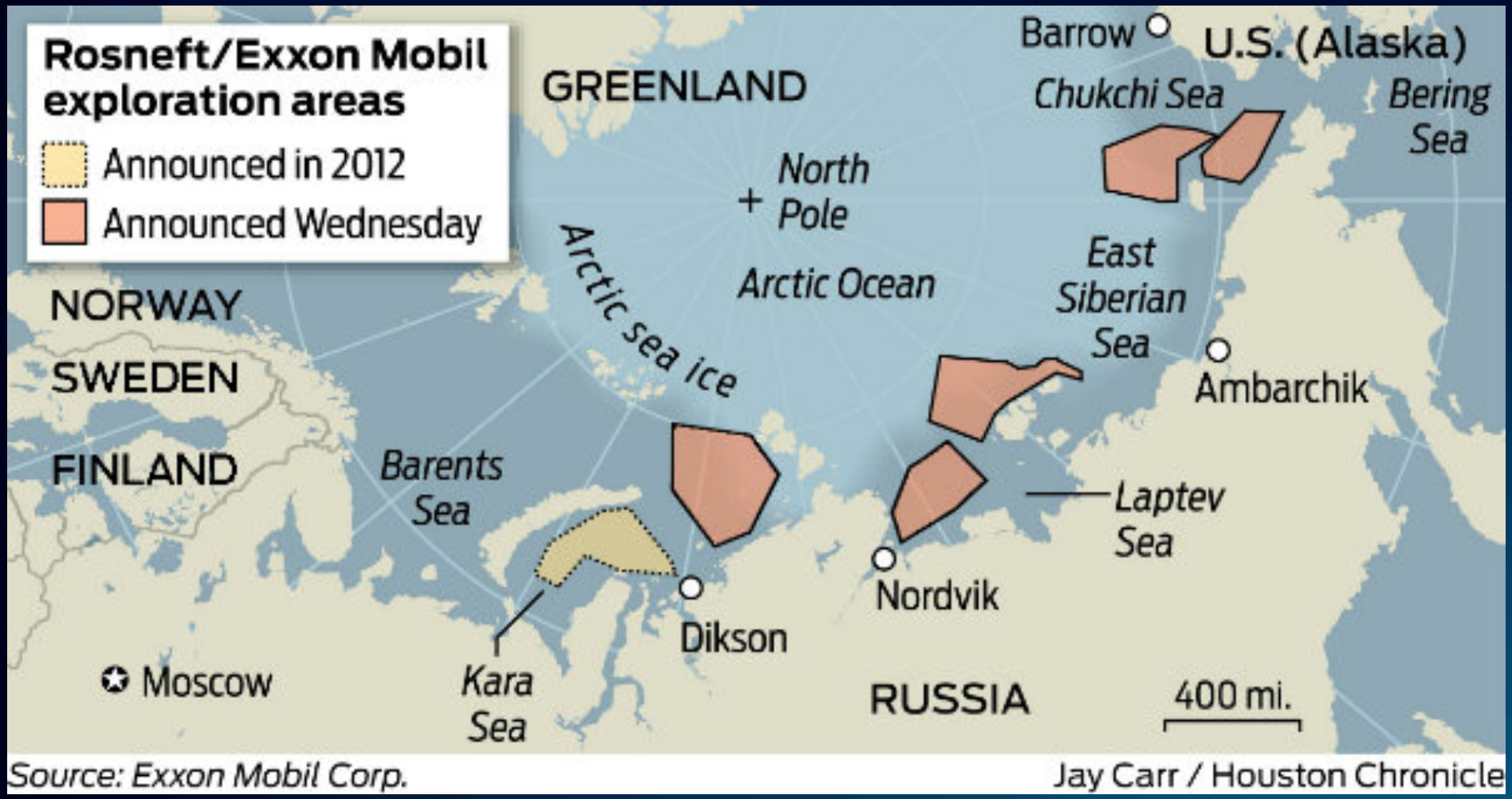
- Increasing global demand for resources

- Arctic region is resource rich and is increasingly accessible due to:
  - Climate change
  - Technological advances




Drilling sites
Arctic Ocean
Burger
Chukchi Sea
Barrow
Beaufort Sea
Sivulliq
Torpedo
Wainwright
National Petroleum Reserve
Prudhoe Bay
Arctic National Wildlife Refuge
CANADA
ALASKA
Anchorage
Trans-Alaska oil pipeline
100 miles
100 km
Source: Shell Offshore Inc.
Graphic: Los Angeles Times
© 2012 MCT

ExxonMobil and Rosneft expand JV (2/13)



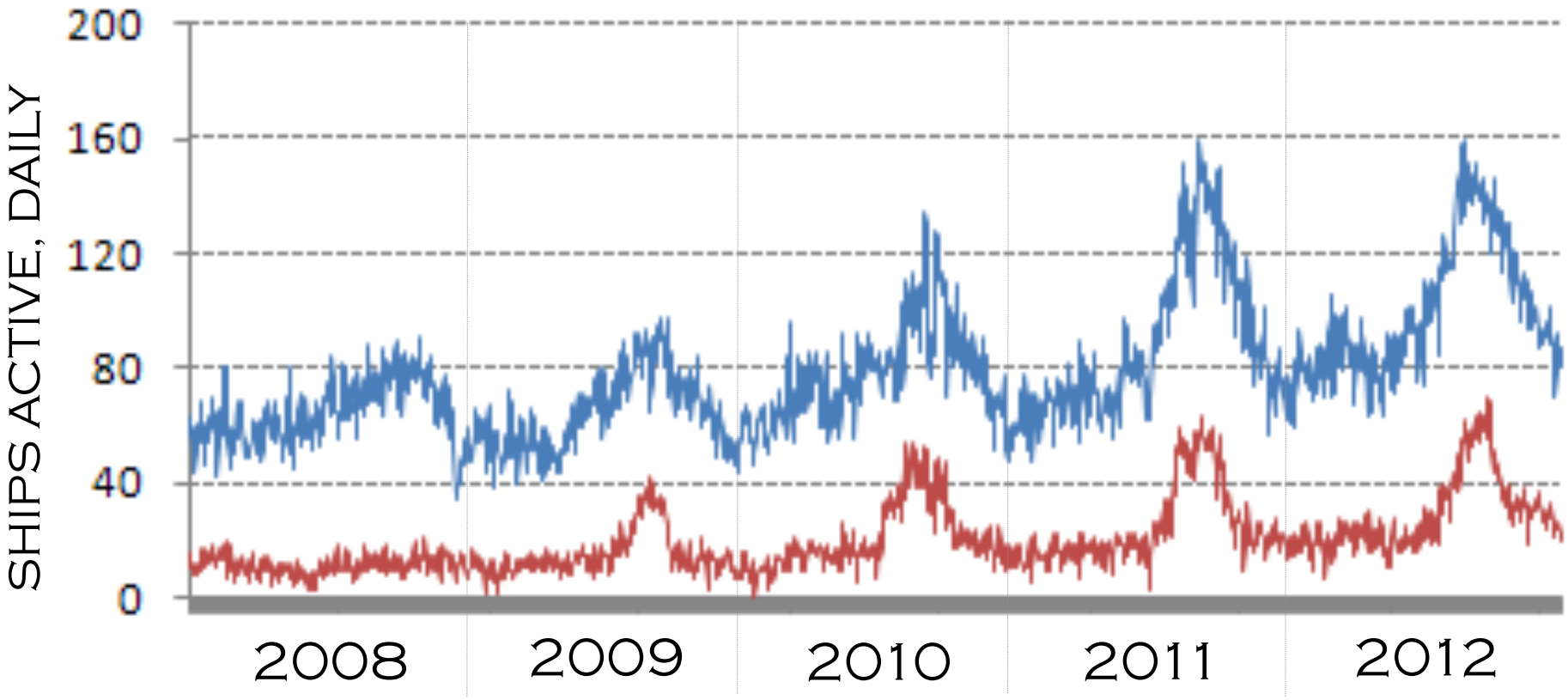
Shell and Gazprom ink new deal (4/13)

Other economic interests

- Subsistence/food security
- Fisheries
- Minerals
- Tourism
- Commercial shipping

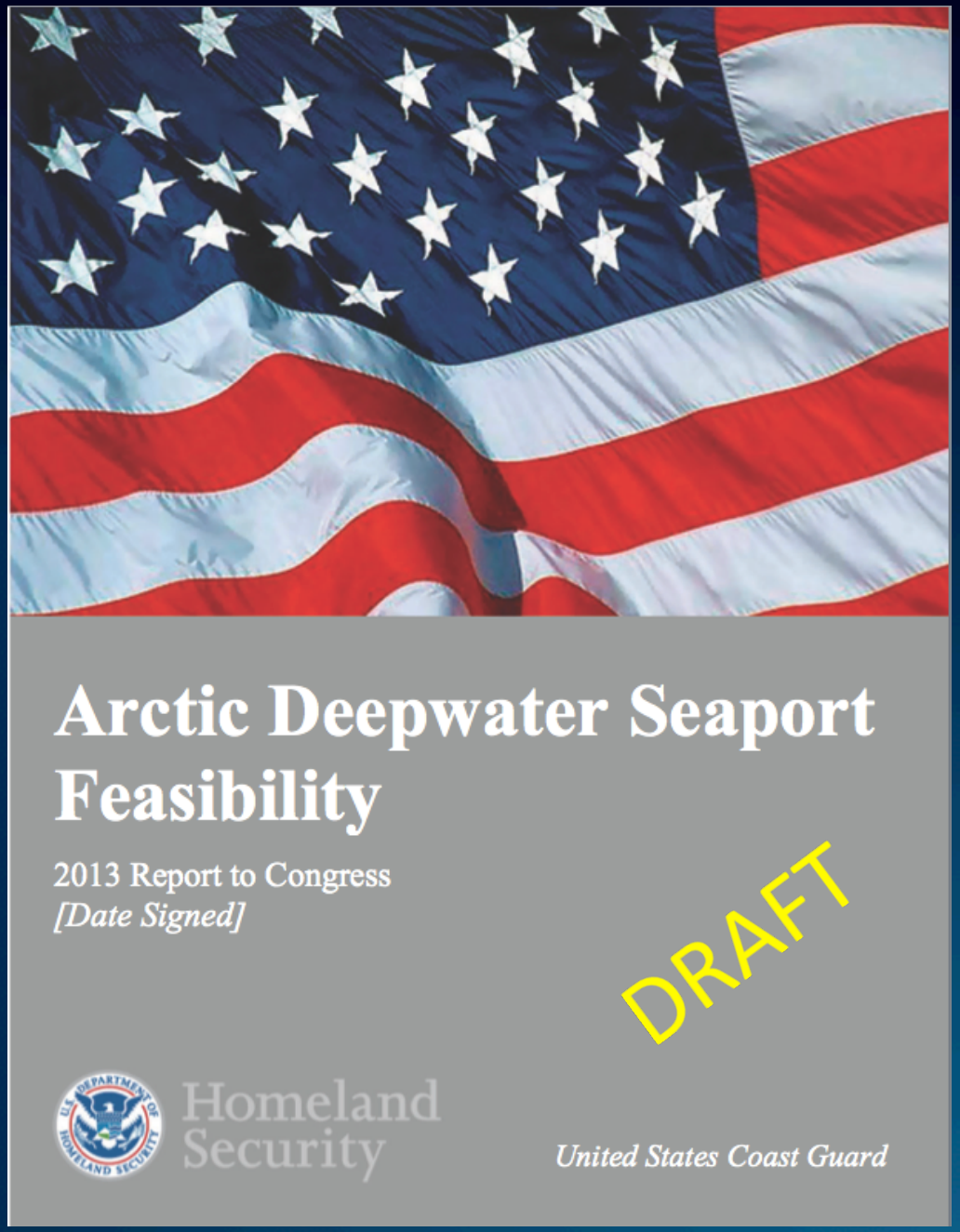
Cargo and Tanker Ships Active in the Arctic

[daily totals, 2008-2012]



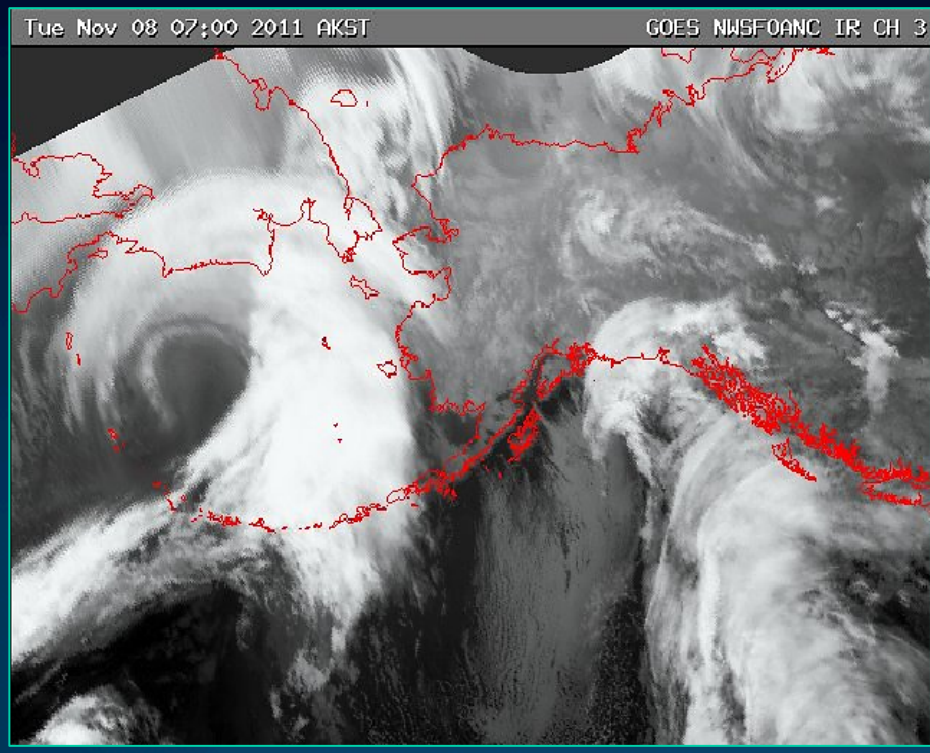
Arctic ports needed

- Depth >34’
- 14 candidate sites
- Top 4
  - -Nome
  - -Port Clarence/Teller
  - -Cape Darby
  - -Barrow



Arctic Development Challenges

- Cold
- Dark
- Remote
- Lack of infrastructure
- Extreme storms



November 2011 storm

- 40-foot seas
- Wind gusts to 93 mph
- Blizzard conditions
- Storm surge

Why are Arctic data needed?

…because data, syntheses, and understanding gained from data inform decisions … sustainable development

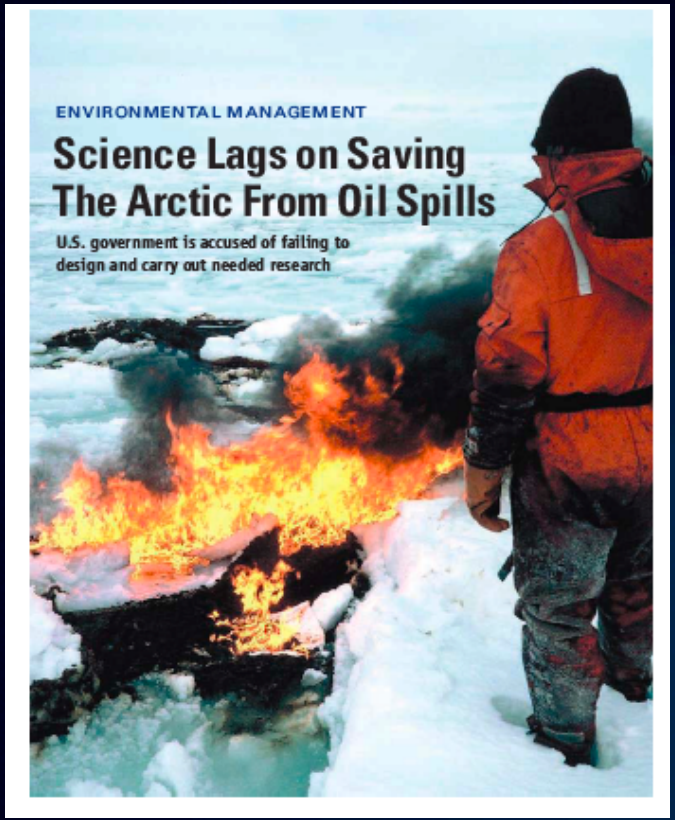
What needs to be done?

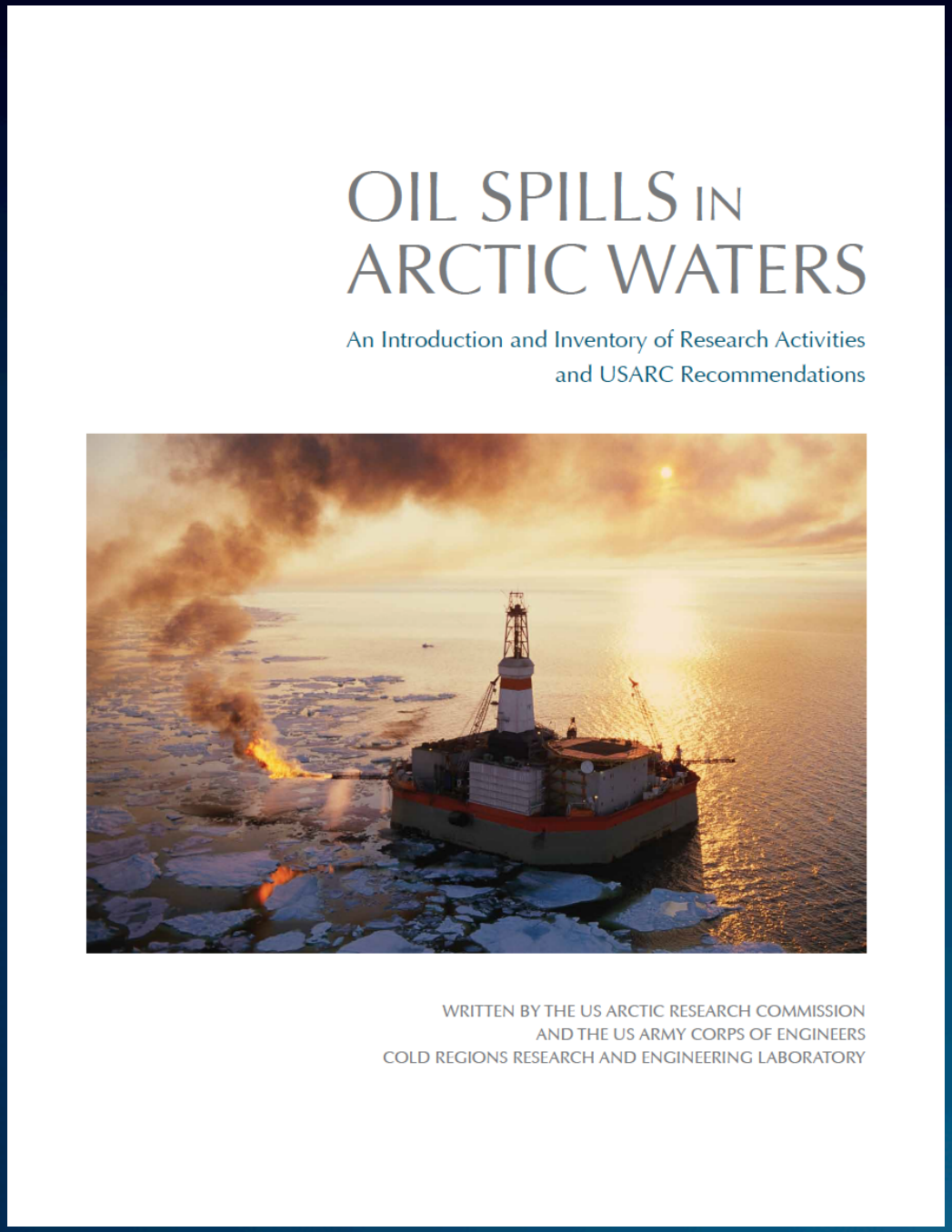
…share understanding, achieve efficiencies, partner as appropriate, and we <u>must</u> continue to invest in the "knowledge economy"

Arctic understanding is needed to:

- Identify and assess resource potential
- Determine sustainability and consequences of development
- Create and implement smart practices for development
- Determine means to prevent problems and respond

Knowledge gained through research. Without it, costs increase.



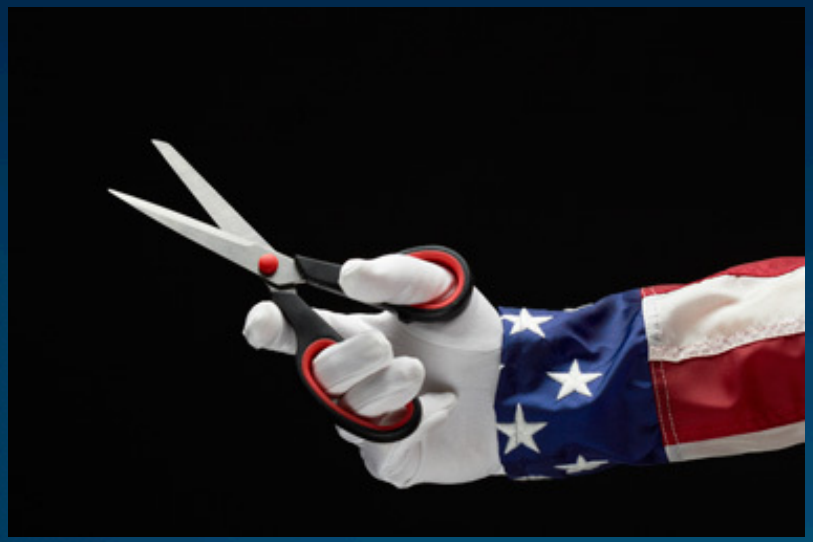


- ICCOPR
- NAS study
- USARC report

Published 11/12

US sequestration…starvation diet

NIH loses $1,600M
NSF loses $370M
NASA loses $270M
DOE Science office loses $260M



Total grants down (NSF by 1000)
Grant success rate decreasing
Excellent science requires stable, predictable funding

S.272 "Arctic research, monitoring, and observing act"

Industry shares Arctic data

- MOA signed in 2011 by NOAA & Shell, Statoil & ConocoPhillips
- Industry sharing (~$70M worth of) data with government, publicly served by Alaska Ocean Observing System
  - Annex #1, meteorological & oceanographic data
  - Annex #2, historic met-ocean data and non-real time environmental studies data
  - Annex #3, hydrographic & bathymetry surveys for charting, habitat mapping

Declassified data from atypical sources

Low cost, “ship of opportunity”

Submarines (SCICEX)

Satellites (global fiducials program)

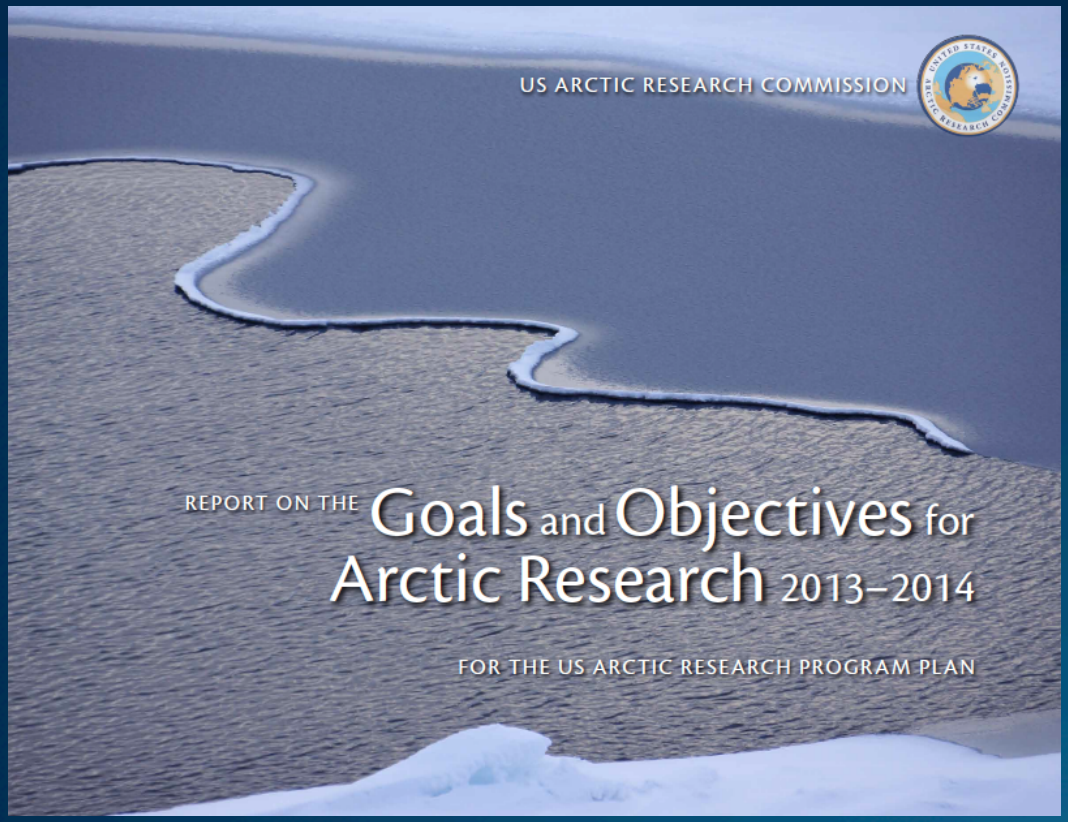
What is the USARC?

- Independent US federal government agency that advises
- Works with both congressional and executive branches
- Develops an integrated national Arctic research policy
- Helps establish a national Arctic research program plan
- Facilitates cooperation among federal, state and local governments, and other nations with respect to Arctic research, both basic and applied

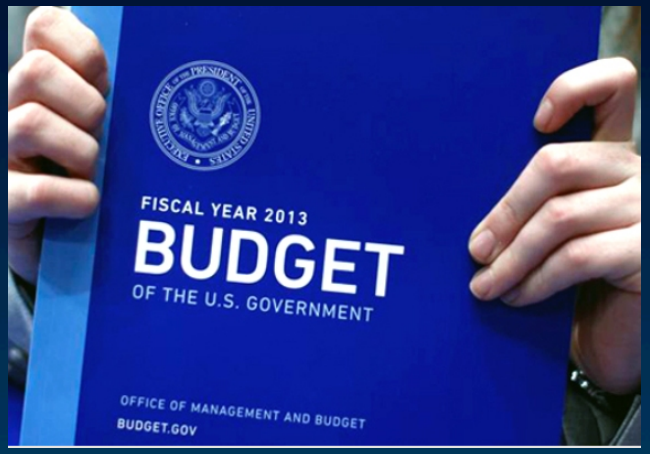
"Goals Report"

5 major research themes for 2013-14

- Environmental Change
- Arctic Human Health
- Civil Infrastructure
- Natural Resource Assessment & Earth Science
- Indigenous Languages, Identities, Cultures



Federal Arctic research policy/process



USARC set goals → IARPC adopts, creates & executes research plan → White House: OMB/OSTP

Congress: Authorizes & Appropriates

Fed. govt. spends ~$400M/yr on Arctic research

ARCTIC UPDATE

THE US ARCTIC RESEARCH COMMISSION DAILY EMAIL NEWSLETTER

July 9, 2013

Today's Events

The House of Representatives will begin debate on **H.R. 2609 - 2014 Energy-Water Appropriations Act**, which President Obama has threatened to veto over reduced research funding for renewable energy.

Media

NASA's polar robotic ranger passes first Greenland test. "Defying 30 mph gusts and temperatures down to minus 22 F, NASA's new polar rover recently demonstrated in Greenland that it could operate completely autonomously in one of Earth's harshest environments. The robot known as GROVER, which stands for both Greenland Rover and Goddard Remotely Operated Vehicle for Exploration and Research, was designed by teams of students attending engineering boot camps at Goddard in the summers of 2010 and 2011. Built to carry a ground-penetrating radar to analyze layers of snow and ice, the rover was later transferred to Boise State University for fine-tuning with NASA funding." Phys.org

Arctic environmentalist wary of federal resource assessment review. "Northern environmentalists say a deal between the Northwest Territories and a federal economic development agency could water down how proposed resource projects are reviewed. Federal officials say the agreement is intended to make sure different government departments work together to ensure the assessment goes smoothly." Edmonton Journal

Murkowski: Pebble should provide more specifics. "U.S. Sen. Lisa Murkowski called on the companies seeking to develop a massive copper and gold prospect

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