

NSF Programs in Support of Polar Research

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National Science Foundation
Geosciences Directorate (GEO)





NSF Mission

“to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense; and for other purposes.”

The Arctic Sciences Section supports fundamental research at the forefront of understanding the Arctic, including human and natural components, and global linkages, from basic processes through system-scale studies



Ice-Diminishing Arctic: NSF's Role

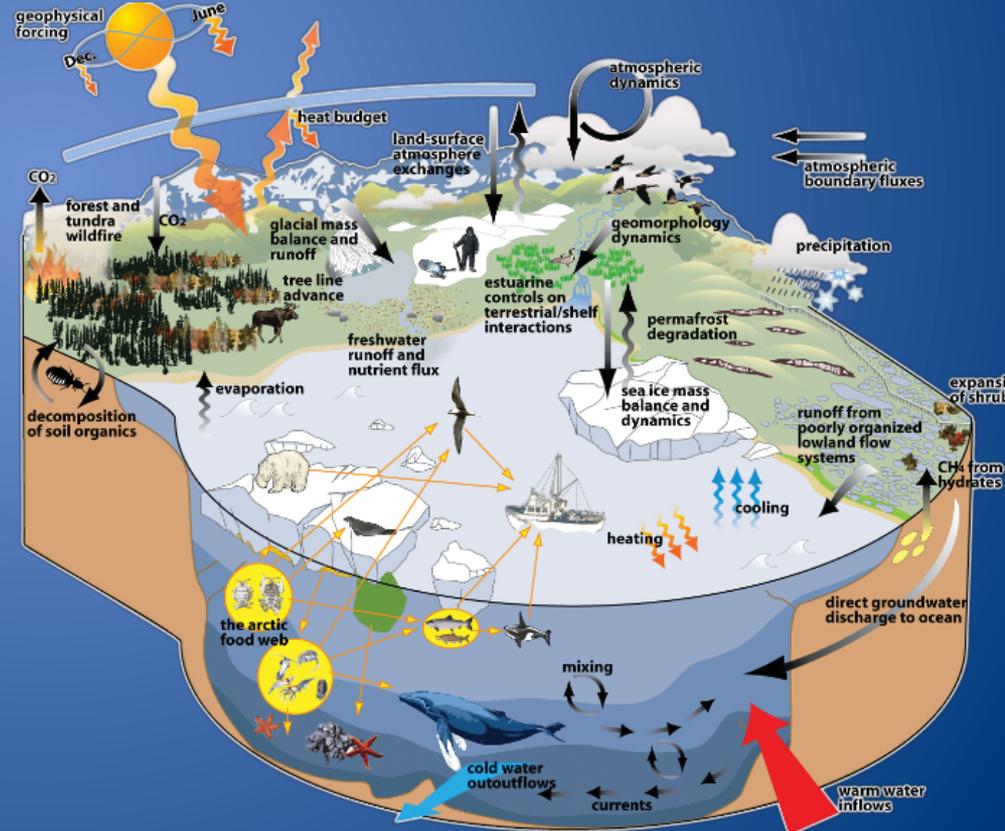


Support competitive merit-reviewed basic research

- Understand processes & interactions
- Systems perspective

Support observations that inform models

- Sustained observations
- Real-time data streams
- Model development & application



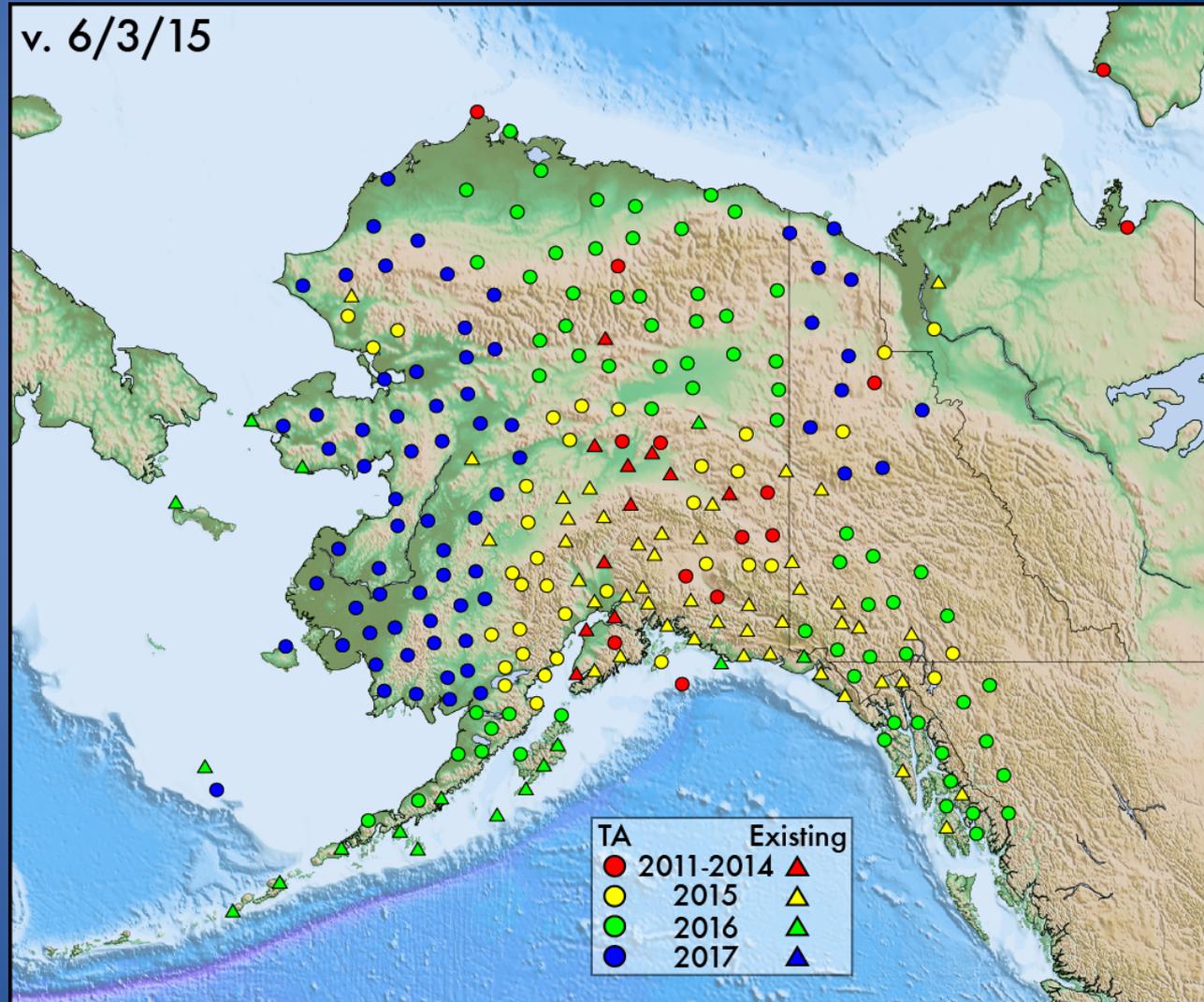
Sample NSF Arctic Science Themes



- *Sea-ice and the changing Arctic Ocean*
- *Glacier dynamics and global sea-level rise*
- *Ocean acidification*
- *Warming tundra/permafrost/ecosystem changes*
- *Human eco-dynamics*
- *Changing socioeconomic development*
- *Science of sustainability, adaptation & resilience*
- *Tectonic regimes*
- *Connections between Arctic and global weather and climate*
- *Space weather*

NSF Arctic Research

EARTHSCOPE Seismic array in Alaska

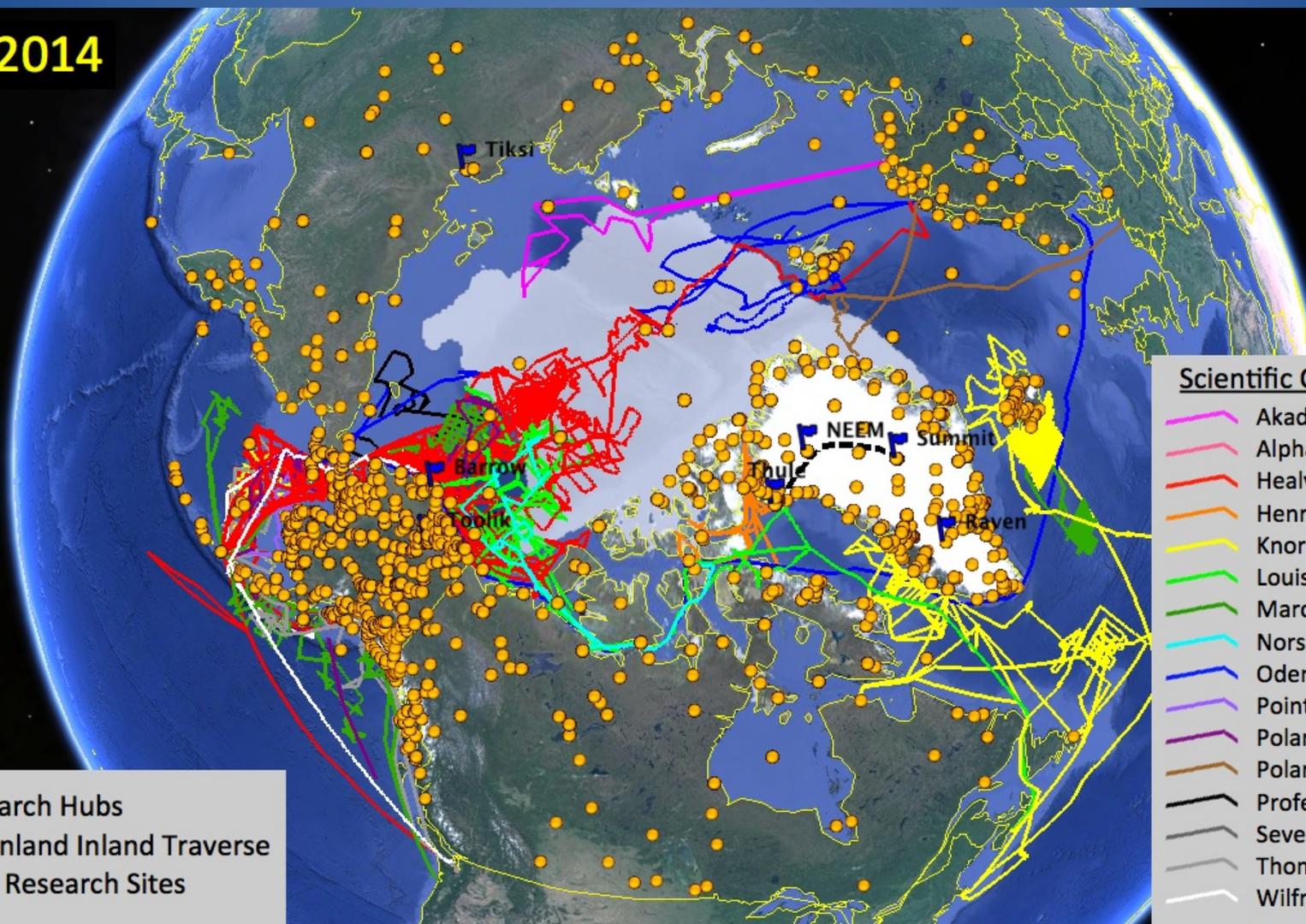


Arctic Field Research – armap.org

8 Arctic nations, ocean and seas

140 projects, 1200 people per year

2004-2014

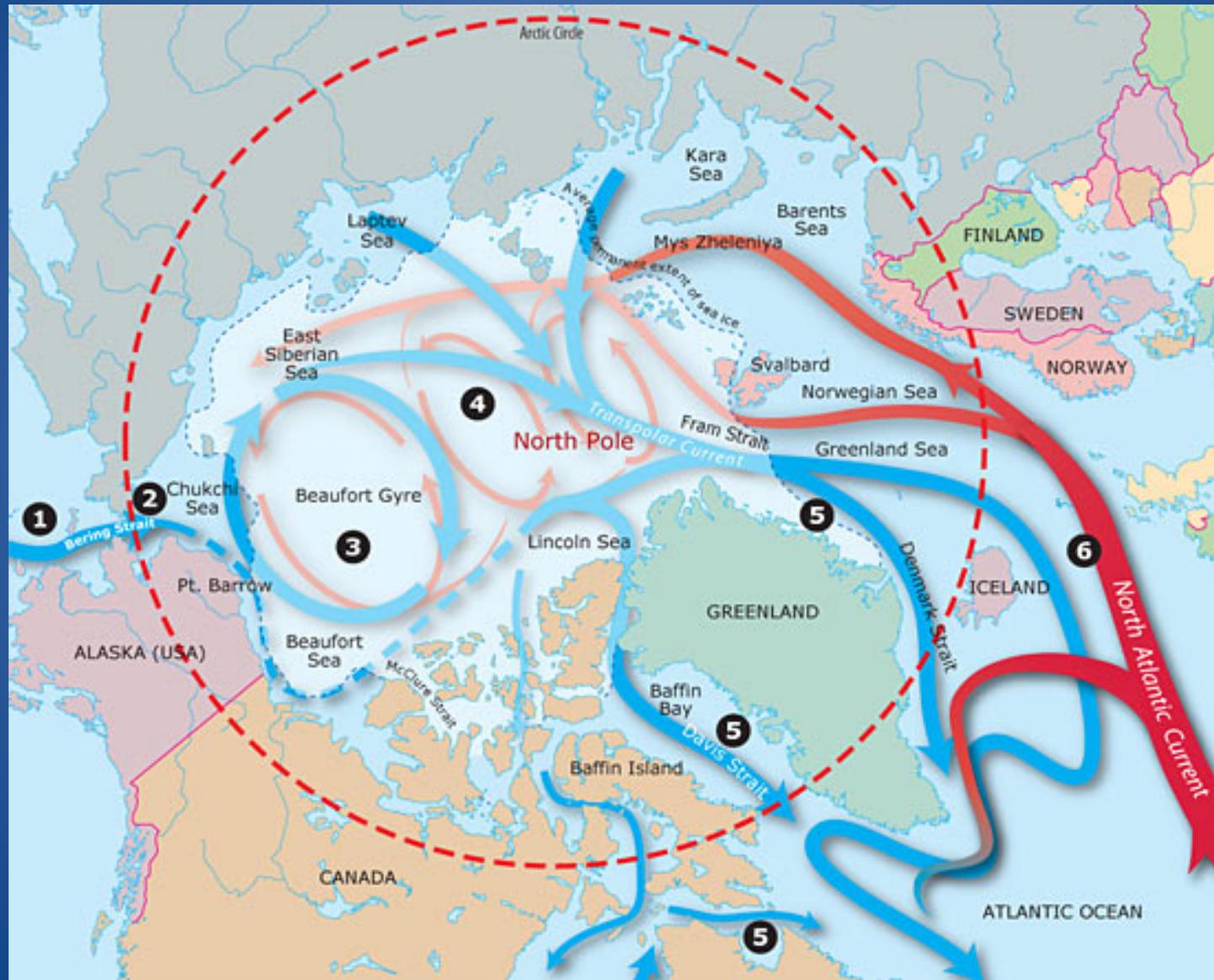


Scientific Cruises:

- Akademik Fyodorov
- Alpha Helix
- Healy
- Henry Larsen
- Knorr
- Louis S. St-Laurent
- Marcus G. Langseth
- Norseman II
- Oden
- Point Sur
- Polar Sea
- Polarstern
- Professor Khromov
- Sever
- Thomas G. Thompson
- Wilfred Laurier

- Research Hubs
- Greenland Inland Traverse
- Field Research Sites

Arctic Ocean and Sea Ice



Strengthening Partnerships

- Interagency Arctic Research Policy Committee (IARPC)
 - IARPC 5-yr Plan
 - Collaboration Teams
- Communication
 - Mutual awareness
 - Data sharing
 - Coordination
 - Collaboration



The screenshot shows the IARPC Collaborations website. The header includes the site name, a search bar, and a link to the member home. The navigation menu lists Home, Arctic research plan, Teams, News, Events, About, and Contact. The main content area features the title "IARPC Arctic Research Plan" and a paragraph explaining the plan's purpose. Below this is a link for "Introduction and background". A section titled "Seven research areas will inform national policy and benefit significantly from interagency coordination" is followed by two sub-sections: "Sea ice and marine ecosystems" and "Regional climate models".

IARPC Collaborations

Search...

Go to member home

Home Arctic research plan Teams News Events About Contact

IARPC Arctic Research Plan

In February 2013, the Executive Office of the President released IARPC's Arctic Research Plan: FY2013-2017 to advance research in areas of common interest to IARPC Agencies. The IARPC 5-year plan was drafted with contributions from all IARPC agencies and reviewed by the public. It intentionally builds on the strong intellectual accomplishments and ideas of the research community at the Federal, State, local, and tribal levels as well as inclusion of ideas from the academic community, non-governmental organizations, and industry.

[Introduction and background >](#)

Seven research areas will inform national policy and benefit significantly from interagency coordination

These research areas do not encompass all Federal Arctic research activities that will occur over the next five years. Many important investigations outside the scope of this plan will continue to be conducted within individual agencies or through other interagency collaborations.

Sea ice and marine ecosystems
Understand sea-ice processes, ecosystem processes, ecosystem services, and climate feedbacks in the Beaufort and Chukchi Seas and the contiguous Arctic Ocean.

Regional climate models
Integrate Arctic regional models



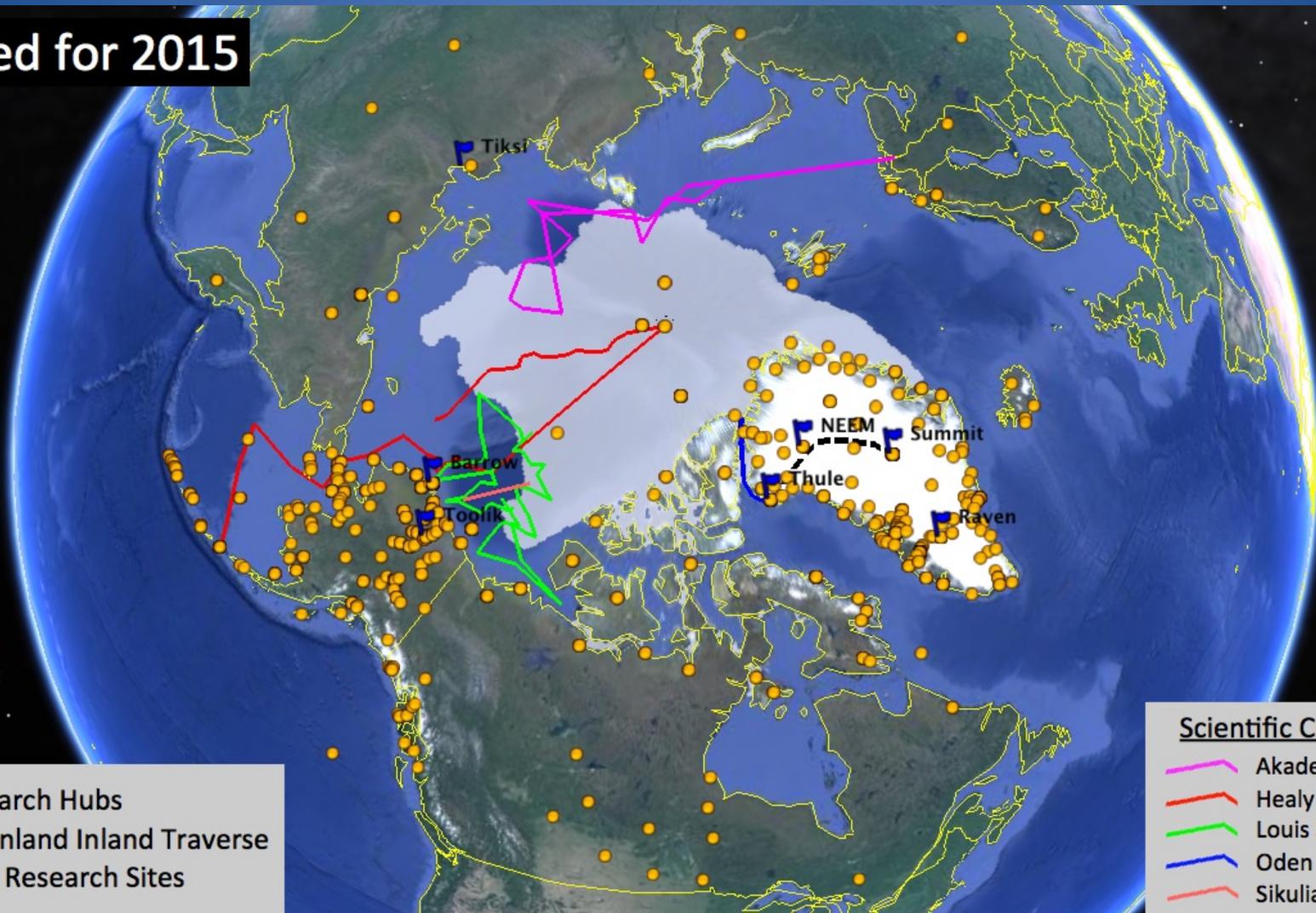
Ice-Diminishing Arctic – NSF Needs

- Operational awareness of weather, fog, sea ice extent and thickness for icebreaker mobility in support of research cruises, on-ice operations and sea-ice camps



2015 Field Research Sites

Planned for 2015



-  Research Hubs
-  Greenland Inland Traverse
-  Field Research Sites

Scientific Cruises:

-  Akademik Fyodorov
-  Healy
-  Louis S. St-Laurent
-  Oden
-  Sikuliaq