

SEARCH Compilation of Published US Agency Arctic Priorities

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The following is an initial list of published U.S. agency arctic priorities, found primarily online. This list has been compiled for informational purposes only for the August 2011 SEARCH SSC Meeting, and it should not be viewed as a complete list.

National Science Foundation (NSF)

NSF is the lead federal agency for implementing U.S. Arctic research policy, and chairs the Interagency Arctic Research Policy Committee, which includes representation from the White House Office of Science and Technology Policy, Agriculture, Commerce, Defense, Health and Human Services, Homeland Security, Interior, State, and Transportation departments, the National Aeronautics and Space Administration (NASA), the Environmental Protection Agency, the Smithsonian Institution and the National Endowment for the Humanities. NSF, through its Division of Arctic Sciences, has supported long-term observing projects in the Arctic since 2003. These include the North Pole Environmental Observatory, the Beaufort Gyre Observatory, and the Circumpolar Environmental Observatories Network. NSF is the lead agency for SEARCH and Interagency Arctic Research Policy Committee.

From: http://www.nsf.gov/news/news_summ.jsp?cntn_id=109687

The goal of the NSF Division of Arctic Sciences is to gain a better understanding of the Arctic's physical, biological, geological, chemical, social and cultural processes; the interactions of oceanic, terrestrial, atmospheric, biological, social, cultural, and economic systems; and the connections that define the Arctic. The Arctic System Science Program (ARCSS) provides opportunities for interdisciplinary investigations of the Arctic as a system, and the current goal of the ARCSS Program is to answer the following question:

- What do changes in the arctic system imply for the future?
(http://www.nsf.gov/funding/pgm_summ.jsp?pims_id=13426&org=ARC&sel_org=ARC&from=fund)

National Oceanic and Atmospheric Administration (NOAA)

NOAA's Arctic Vision & Strategy document provides a high-level framework and six strategic goals to address NOAA's highest priorities in the region. It is based upon assumptions that the region will: 1) continue to experience dramatic change, 2) become more accessible to human activities, and 3) be a focus of increasing global strategic interest.

NOAA envisions an Arctic where decisions and actions related to conservation, management, and use are based on sound science and support healthy, productive, and resilient communities and ecosystems. The agency seeks a future where the global implications of Arctic change are better understood and predicted.

NOAA will focus its efforts on the following six priority goals needed to realize this vision:

- 1) Forecast Sea Ice
- 2) Strengthen Foundational Science to Understand and Detect Arctic Climate and Ecosystem Changes
- 3) Improve Weather and Water Forecasts and Warnings
- 4) Enhance International and National Partnerships
- 5) Improve Stewardship and Management of Ocean and Coastal Resources in the Arctic
- 6) Advance Resilient and Healthy Arctic Communities and Economies

Source: NOAA's Arctic Vision & Strategy document, February 2011
www.arctic.noaa.gov/docs/NOAAArctic_V_S_2011.pdf

The National Ice Center (NIC) partnership is collaboration between US Navy, NOAA, and USCG. International partnerships include working with PAME, a subcommittee of the Arctic Council, and RUSALCA, the Russian-American Long-term Census of the Arctic (www.arctic.noaa.gov/arorussian-american/).

National Aeronautics and Space Administration (NASA)

NASA's Cryosphere Program:

Remote sensing plays a key role in characterizing the world's major ice sheets due to their size and the scale of change that they undergo. The NASA Cryosphere program has a range of goals, but at present its two highest priorities are understanding:

1. Terrestrial ice sheets of Greenland and Antarctica with an emphasis on acquiring data to characterize them and develop predictive models of their behavior and contributions to sea level change.
2. Arctic sea ice, and to a lesser extent the Antarctic sea ice, with an emphasis on determining its status and the controls on its extent and thickness

NASA IceBridge Mission Overview:

IceBridge, a six-year NASA mission, is the largest airborne survey of Earth's polar ice ever flown. It will yield an unprecedented three-dimensional view of Arctic and Antarctic ice sheets, ice shelves and sea ice. These flights will provide a yearly, multi-instrument look at the behavior of the rapidly changing features of the Greenland and Antarctic ice.

Data collected during IceBridge will help scientists bridge the gap in polar observations between NASA's Ice, Cloud and Land Elevation Satellite (ICESat) -- in orbit since 2003 -

- and ICESat-2, planned for late 2015. ICESat stopped collecting science data in 2009, making IceBridge critical for ensuring a continuous series of observations.

IceBridge will use airborne instruments to map Arctic and Antarctic areas once a year. IceBridge flights were conducted in March/May 2009 and 2010 over Greenland and in October/November 2009 and 2010 over Antarctica. Other smaller airborne surveys around the world are also part of the IceBridge campaign.

Source: http://www.nasa.gov/mission_pages/icebridge/mission/index.html

Department of Energy (DOE)

Department of Energy Office of Science, Biological and Environmental Research (BER)

A goal of the DOE BER is to:

Advance climate change research to provide knowledge of effects of greenhouse gas emissions on Earth's climate and biosphere—supporting effective energy and environmental decision-making.

Department of the Interior (DOI)

The Department of the Interior's goal is to focus on data management, provide adaptation support to communities, and manage mineral resources in the Arctic. Part of DOI's mission is to maintain culture and this translates to subsistence culture which links to health.

from May 13, 2011 IARPC Staff Meeting Minutes:

http://www.nsf.gov/od/opp/arctic/iarpc/051311mtg/iarpc051311_mtgminutes.pdf

National Park Service (NPS)

The NPS Arctic Network Inventory and Monitoring Program is a study of 5 areas: Bering Land Bridge National Preserve, Cape Krusenstern National Monument, Gates of the Arctic National Park and Preserve, Kobuk Valley National Park and Noatak National Preserve. The mission of the NPS Arctic Network is: 'to collect, compile and synthesize scientific information about the arctic network of parks in order to facilitate their preservation, unimpaired, for future generations'. There is a specific emphasis on how various systems and processes will be impacted by climate change.

Inventory and Monitoring Goals:

- Inventory the natural resources and park ecosystems under National Park Service stewardship to determine their nature and status.
- Monitor park ecosystems to better understand their dynamic nature and condition, and to provide reference points for comparisons with other, altered environments.

- Establish natural resource inventory and monitoring as a standard practice throughout the National Park system.
- Integrate natural resource inventory and monitoring information into National Park Service planning, management, and decision making.
- Share accomplishments and information with others and form partnerships for reaching common goals and objectives.

U.S. Geological Survey (USGS)

In response to a request from Secretary of the Interior Ken Salazar, the U.S. Geological Survey released the ‘science gap and sufficiency’ report on June 23, 2011, evaluating science needed to better inform decisions regarding oil and natural gas exploration and development in the Beaufort and Chukchi Seas off Alaska.

Among the major areas noted in the report where additional scientific research, analysis and synthesis could reduce uncertainties include the following:

- Developing a better understanding of the effects of climate change on physical, biological and social conditions as well as resource management strategies in the Arctic;
- Developing foundational geospatial data on the Arctic Outer Continental Shelf;
- Synthesizing existing scientific information on a wide range of topics on the Arctic;
- Building upon advances in spill-risk evaluation and response knowledge by developing better information on key inputs to spill models (such as oceanographic, weather, and ecological data);
- Improving dialogue and using collaborative, comprehensive science planning, both domestically and internationally.

A fact sheet on the Arctic study is available at <http://pubs.usgs.gov/fs/2011/3048>

The report is available at <http://pubs.usgs.gov/circ/1370>

Source: <http://www.doi.gov/news/pressreleases/USGS-Arctic-Study-Evaluates-Science-and-Knowledge-Gaps-for-OCS-Energy-Development.cfm>

Bureau of Ocean Energy Management, Regulation and Enforcement (BOEMRE)

The BOEMRE has developed a comprehensive summary report of the Arctic oil spill response research projects and their accomplishments. The report, entitled: "Arctic Oil Spill Response Research and Development Program: A Decade of Achievement" (732 KB PDF) is available to be downloaded.

The BOEMRE has an active program to fund and conduct Arctic oil spill research and development (R&D) projects. This includes oil spills that may occur on top of or underneath solid, stable ice, in broken ice, or in cold open waters. In most areas of the world, the greatest need is to develop operational tools to detect and map oil in any ice type and to develop effective response options to spilled oil in moving, broken pack ice. R&D projects currently underway focuses on four types of response technologies: remote

sensing and surveillance, mechanical response, chemical treating agents including dispersants and in-situ burning. This research includes conducting operational research experiments with oil in small and large test tanks, at sea, and in ice to demonstrate and improve many different types of oil spill response technologies and methodologies. From 1997 through 2008, BOEMRE successfully developed, implemented and conducted thirty-one projects directly related to Arctic oil spill response. More than 40% of these project were jointly funded with state and federal government agencies, academia, private industry and foreign governments.

Source: <http://www.boemre.gov/tarprojectcategories/arcticoilspillresponseresearch.htm>

For more information also see: MMSArcticResearch.pdf

Department of Defense (DOD)

The Navy's Arctic Roadmap (10 November 2009; see www.navy.mil/navydata/documents/USN_artic_roadmap.pdf) 'provides a holistic, chronological list of Navy action items, strategic objectives, and desired effects regarding the Arctic for Fiscal Years (FY) 2010-2014'. Among other action items and objectives, one goal of the Roadmap is to understand when significant access for Arctic shipping and other maritime activity is likely to develop.

The Navy's Strategic Objectives for the Arctic (21 May 2010; Navy10ArcticRoadmap.pdf; could not find weblink for document) defines the Navy's 'desired end state as a safe, stable, and secure region where U.S. national and maritime interests are safeguarded and the homeland is protected'. To achieve this, they outline the following 5 strategic objectives:

1. Contribute to safety, stability, and security in the region
2. Safeguard U.S. maritime interests in the region
3. Protect the American people, our critical infrastructure, and key resources
4. Strengthen existing and foster new cooperative relationships in the region
5. Ensure Navy forces are capable and ready

The Navy's Task Force Climate Change is reviewing these issues since expanded capabilities or capacities may be required in a changing Arctic.

Smithsonian

The Smithsonian's Arctic Studies Center, established in 1988, is the only U.S. government program with a special focus on northern cultural research and education.

The Arctic Studies Center's research profile includes four topical focus areas:

- History of Northern Peoples and Environments
- Culture Contact and Transformations
- Collections
- Collaboration and Partnerships

Source: <http://www.mnh.si.edu/arctic/html/research.html>

USDA

Arctic and Subarctic Plant Gene Bank -- Palmer, Alaska

The Arctic and Subarctic Plant Gene Bank conserves, evaluates, and distributes a broad spectrum of genetic resources of plants adapted to short, cool seasons and a long photoperiod, to generate and manage associated information, and to provide a scientific base for its use in research and crop improvement.

U.S. Arctic Research Commission

The principal duties of the Arctic Research Commission are to:

- Develop and recommend national Arctic research policy.
- Assist the NSTC, NSF and IARPC in establishing a national Arctic Research Plan
- Review federal Arctic research programs and suggest improvements.
- Review the President's budget request and report to Congress on the adherence to the Arctic Research Plan.
- Facilitate cooperation among federal, state and local governments in advancing Arctic research.
- Cooperate with the Governor of Alaska to support Arctic Research policy.
- Recommend improved Arctic research logistics planning and support.
- Recommend improved sharing and dissemination of Arctic data/information among public and private institutions.
- Publish a statement of goals and objectives to guide IARPC.

Major recommendations of the Commission on Arctic research policy, program priorities, and coordination are published in the Commission's biennial Report on Goals and Objectives for Arctic Research, as well as the Commission's Special Report series.

From: <http://www.arctic.gov/about.html>

The USARC's latest biennial report is available at:

http://www.arctic.gov/publications/2009-10_usarc_goals.html

And the USARC scaling report, 'Scaling Studies in Arctic System Science and Policy Support: A Call-to-Research' is available at:

http://www.arctic.gov/publications/arctic_scaling.html

The 6 Synthesis Findings from the scaling report are:

1. *Scaling issues and even the definitions of scale are so varied across individual disciplines that they hinder interdisciplinary research.*
2. *Scale incongruities among components of the Arctic system give rise to opportunities to study intermediate scales.*

3. *Thresholds are scale-sensitive and important, yet prove difficult to detect, study, and/or predict.*
4. *Scales of human perception are much different than those associated with the study of natural systems.*
5. *Information has not been well structured to facilitate cross-scale studies.*
6. *Science conclusions and uncertainties require better translation into information for policymakers.*

White House Arctic Policy

On January 9, 2009 the White House released its new U.S. policy towards the Arctic (policy last updated in 1994). The full text is available at: <http://georgewbush-whitehouse.archives.gov/news/releases/2009/01/20090112-3.html>, and is formally called National Security Presidential Directive/NSPD 66 and Homeland Security Presidential Directive/HSPD 25.

‘This directive takes into account several developments, including, among others:

- a. Altered national policies on homeland security and defense;
- b. The effects of climate change and increasing human activity in the Arctic region;
- c. The establishment and ongoing work of the Arctic Council; and
- d. A growing awareness that the Arctic region is both fragile and rich in resources.

The Directive states that ‘it is the policy of the United States to:

- a. Meet national security and homeland security needs relevant to the Arctic region;
- b. Protect the Arctic environment and conserve its biological resources;
- c. Ensure that natural resource management and economic development in the region are environmentally sustainable;
- d. Strengthen institutions for cooperation among the eight Arctic nations (the United States, Canada, Denmark, Finland, Iceland, Norway, the Russian Federation, and Sweden);
- e. Involve the Arctic's indigenous communities in decisions that affect them; and
- f. Enhance scientific monitoring and research into local, regional, and global environmental issues.’