



Arctic Research Plan FY 2013-2017

Interagency Arctic Research Policy Committee: Five-Year Plan February 2013

Executive Office of the President
National Science and Technology Council

Overview

There is broad scientific consensus that changes in global climate are altering ice and snow cover and affecting Arctic ecosystems, indigenous societies, natural resources, global sea level, and climate in high and low latitudes. Collaborative research among Federal agencies, departments, and offices is needed to increase fundamental understanding of these changes and inform development of sound, science-based solutions. The Interagency Arctic Research Policy Committee (IARPC) was charged with developing a five-year plan for federally sponsored research in and about the Arctic region for 2013-2017.



The ribbon seal breeds and rests on ice in the Okhotsk, Bering, and Chukchi seas.

Summary

Interagency cooperation on Arctic research is more important than ever. Rapid changes are affecting the region's biodiversity and people in many ways, including by increasing access to the region for energy and mineral development, shipping, tourism, and military operations—human activities that may carry both risks and opportunities for the Arctic region. Federal agencies are conducting scientific research to understand those changes, risks, and opportunities. Policy makers are increasingly relying on that science to make decisions and form practical responses. This IARPC research plan aims to support those decisions with enhanced interagency cooperation to address the most pressing needs in the Arctic.



Although health and survival of Arctic indigenous peoples have improved over the last 50 years, important disparities remain in life expectancy, infant mortality, and leading causes of death.

Seven Priority Research Areas

For 2013-2017, IARPC has identified seven research areas in three broad domains that will inform national policy in the Arctic and benefit significantly from close interagency coordination.

What scientific challenges is IARPC exploring?

- Changes in sea ice and Arctic Ocean ecosystems
- Changes in glaciers, permafrost, snow, ice sheets, hydrates, and the terrestrial ecosystems
- Changes in the Arctic atmosphere and its processes

How is IARPC addressing these challenges?

- Strengthening integrated, collaborative efforts to observe change on multiple spatial and temporal scales
- Improving regional climate models to enhance future projections of Arctic conditions

How will IARPC benefit Arctic residents?

- Developing sustainable strategies to help communities adapt
- Investigating threats to human health

Key Research Questions

Addressing the seven priority research areas requires a sharp focus on the changing Arctic cryosphere (the world's solid-state water, including sea ice, glaciers, snow cover, and permafrost) and its impacts on the physical environment, ecosystems, and communities in the Arctic and elsewhere. In order to address these challenges, key research questions include:

- **Sea Ice and Arctic Ocean Ecosystems** At what rates will Arctic sea ice diminish over the next 100 years, and how will Arctic Ocean acidity change in coming decades? What will be the consequences for Arctic ecosystems and their inhabitants, and the global climate and environments?
- **Ice Sheets and Glaciers** At what rates will Arctic glaciers and ice sheets diminish over the next 100 years? What processes and forces are driving the loss? What will be the consequences for Arctic ecosystems and their inhabitants, and what will be the impact on global climate and sea level?
- **Permafrost** At what rates will Arctic permafrost diminish over the next 100 years, and what will be the consequences for Arctic ecosystems and their inhabitants, and what will be the impact on the global climate system?



Studying terrestrial ecosystems will contribute to a better understanding of the cumulative impacts of changes taking place in the Arctic.

For more information:

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Full report available at:
<http://www.whitehouse.gov/administration/eop/ostp/nstc/docsreports>



IARPC is partnering with indigenous people in the Arctic to develop strategies for sustaining communities.

Who Is IARPC?

The IARPC, chaired by the National Science Foundation, is a subcommittee of the Committee on Environment, Natural Resources, and Sustainability within the National Science and Technology Council. IARPC's Principals represent 14 Federal agencies with research responsibilities in the Arctic.

Department of Agriculture
Department of Commerce
Department of Defense
Department of Energy
Department of Health and Human Services
Department of Homeland Security (U.S. Coast Guard)
Department of Interior
Department of State
Department of Transportation
Environmental Protection Agency
Marine Mammal Commission
National Aeronautics and Space Administration
National Science Foundation (chair)
Smithsonian Institution

Successful implementation of this five-year research plan will require close coordination among all of these groups, the State of Alaska, indigenous organizations, academic institutions, non-governmental organizations, the Arctic Council, and international partners.