

October 2023



Fostering Collaboration, Access, and Public Interest through Web Mapping Applications

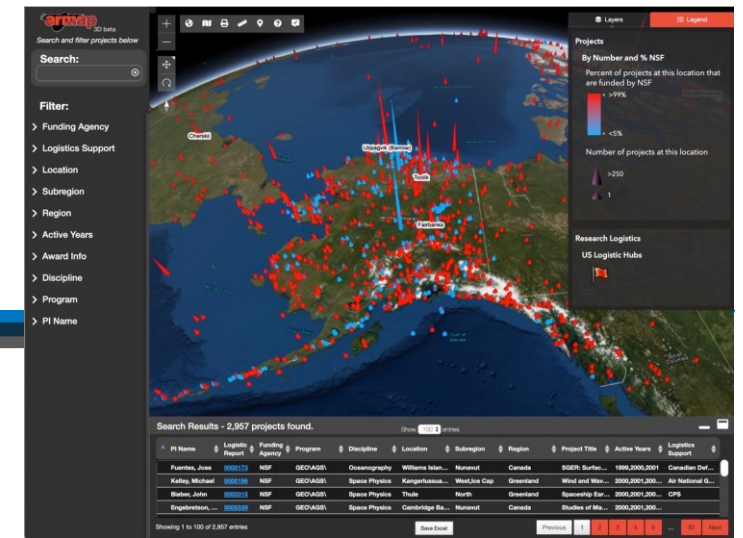
Resources provided by the Arctic Research Mapping Applications





Arctic Research Mapping Application

- A suite of online, interactive maps and data services that support Arctic science.
- Use to explore field-based research – the who’s doing what, where and when.
- Provides info on medical facilities, field research stations, airports, vessel tracks, contacts for permitting and tribal consultation based on jurisdiction.



Who is the Audience?

NSF Office of Polar Programs

- Program officers

NSF Research Principle Investigators

- Scientists

Arctic Research Operations Team

- Battelle, Polar Field Services, UIC Science, University of Colorado Health Wilderness Medicine

Users with Synergistic Interests in Information Sharing

- Alaska Data Integration work group, NSF Arctic Data Center, NSF Navigating the New Arctic program office, Isaaffik, Danish Joint Arctic Command), NASA Arctic-Boreal Vulnerability Experiment (ABoVE),

Inter-Agency Representatives

- US Arctic Research Commission, Interagency Arctic Research Policy Committee, US Arctic Observation Network

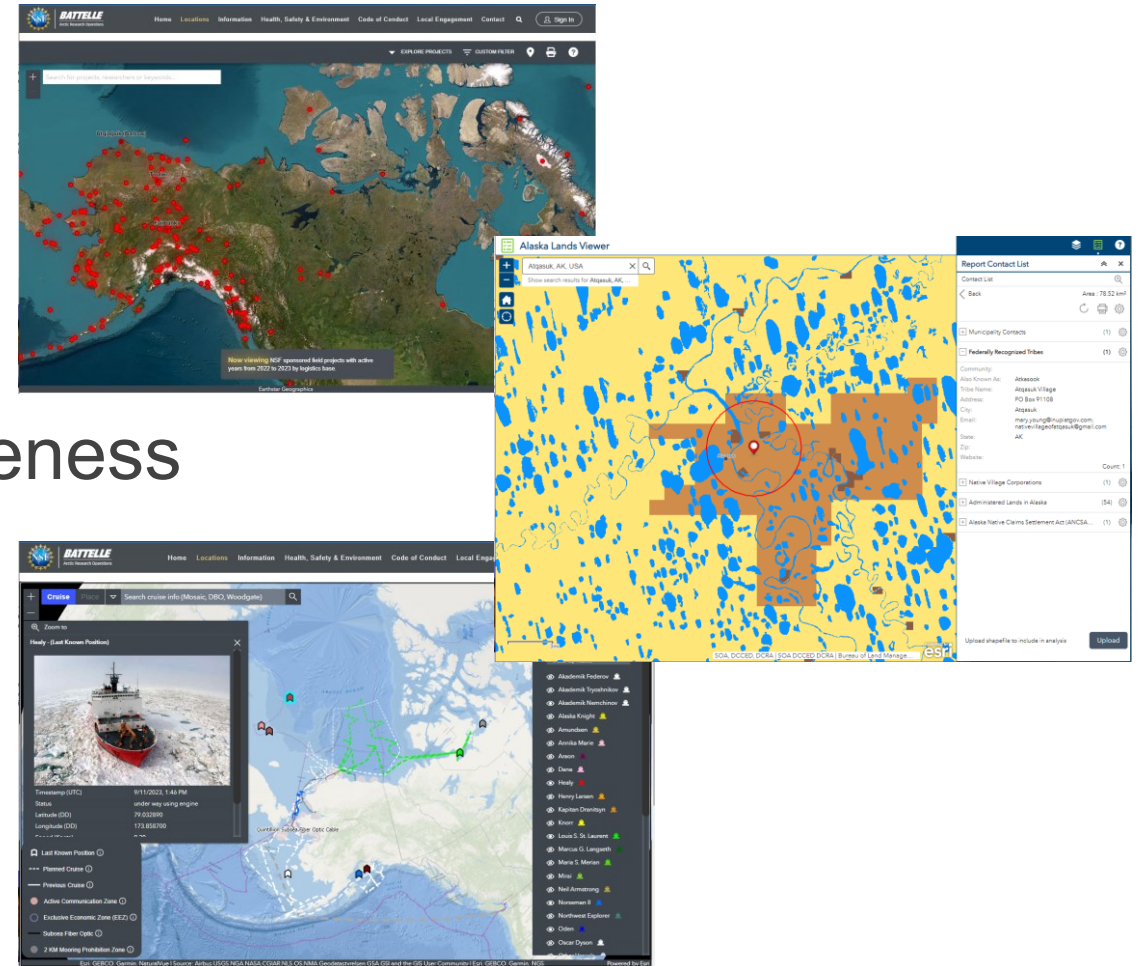
Arctic Science Outreach / Public

- Arctic residents, tribal and local government entities and the media.



Tools for Arctic Science Planning

- Project Browser
- Alaska Lands Viewer
- Research Cruise Viewer
- Visualizations for Situational Awareness
- Map Gallery
- Interoperable Web Services



Search for projects, researchers or keywords...
Search for projects, researchers or keywords...



Now viewing NSF sponsored field projects with active years from 2023 to 2026 by logistics base.

Earthstar Geographics

Powered by Esri

Next Gen ARMAP Project Browser

- Beta application



Alaska Lands Viewer

- Web map to check jurisdiction of planned research activities by location, provides a list of contacts for permitting agencies and tribal consultation.
- Integrates web services from the State of Alaska and Department of Interior (BLM, NPS, USFWS) that are updated regularly.

Name	Count	Area(m ²)	Length(m)
Municipality Contacts	1	N/A	N/A
Federally Recognized Tribes	1	N/A	N/A
Administered Lands	50	3332	N/A
Native Allotments	4	0.99	N/A
Native Village Corporations	1	N/A	N/A

#	Municipality	Type	Address	City	State
1	City of Atkasuk	Second Class City	PO Box 91119	Atkasuk	AK

#	Zip	Email	Website	Phone	Count
1	99791	cityofatkasuk@hotmail.com	No Data	+1 (907) 633-8811	1

#	Tribe Name	Entity Type	Also Known As	Address	City
1	Atkasuk Village	Federally Recognized Tribe	Atkasook	PO Box 91108	Atkasuk

#	State	Zip	Phone	Email	Community	Count
1	AK	99791	+1 (907) 633-2575	mary.young@rupat.gov.com, tabrewal@atkasuk.ak@gmail.com	Atkasuk	1

#	Department Name	Unit Name	Area(m ²)
1	Alaska Native Lands Patented or Interim Conveyed	ANCNSA Village	23.79
2	Undetermined	ANCNSA Village	5.12
			0.09
			0.41
			< 0.01

#	Municipality Contacts	Area(m ²)
1	City of Atkasuk	0.25
2	Second Class City	0.25
3	PO Box 91119	0.25
4	Atkasuk	0.25
5	AK	0.25
6	99791	0.25
7	cityofatkasuk@hotmail.com	0.25
8	No Data	0.25
9	+1 (907) 633-8811	0.25
10	Count: 1	0.24

<https://battellearcticgateway.org/hse/permits>

Alaska

Land Ownership

Toolik Field Station

Utqiagvik

Ground Disturbance /
Archaeology – Section 106

Endangered Species Act –
Section 7/ Marine Mammal
Protection Act

Unmanned Aerial Vehicles
(UAVs)

Land Disturbance and
Vegetation Clearing


Land Ownership


The Alaska Lands Viewer can be used to obtain contacts for relevant agencies and tribal entities. Each landowner has their own permitting requirements, and therefore it is recommended that research locations be limited to as few land owners as possible to reduce permitting needs.

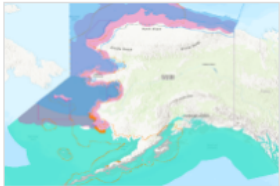
Search for a place you wish to work, explore the map or view the Help to print a contact list.


Click on the map below to open it in a new window.

Permits and Environmental Consultation


Environmental Compliance Layers version 1 

 Edit thumbnail



 Add to Favorites

Jurisdiction boundaries and data for key species of concern.

 Web Map by nunatech@usa.net

Created: Dec 3, 2022 Updated: Dec 3, 2022 View Count: 105

Description

Administrative boundaries, native allotments plus range and habitat information for species of concern compliance and tribal review for field research planning.

- Species of concern

Layers

Administered Lands (Alaska)

Native Allotment

Polar Bear Habitat

Steller's Eider Habitat

Steller's Eider Range

Northern Sea Otter Habitat

Polar Bear Range

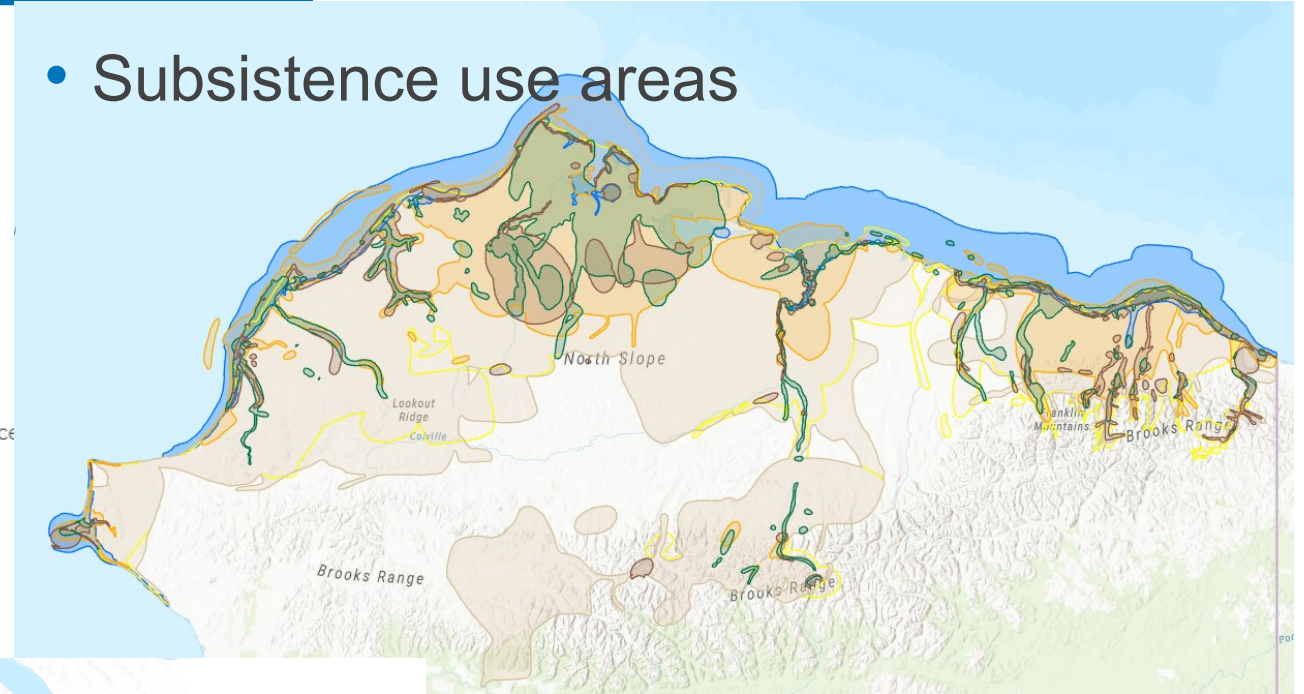
Spectacled Eider Range

Spectacled Eider Habitat

Short Railed Albatrus Range

Northern Sea Otter Range

- Subsistence use areas



- Protected areas

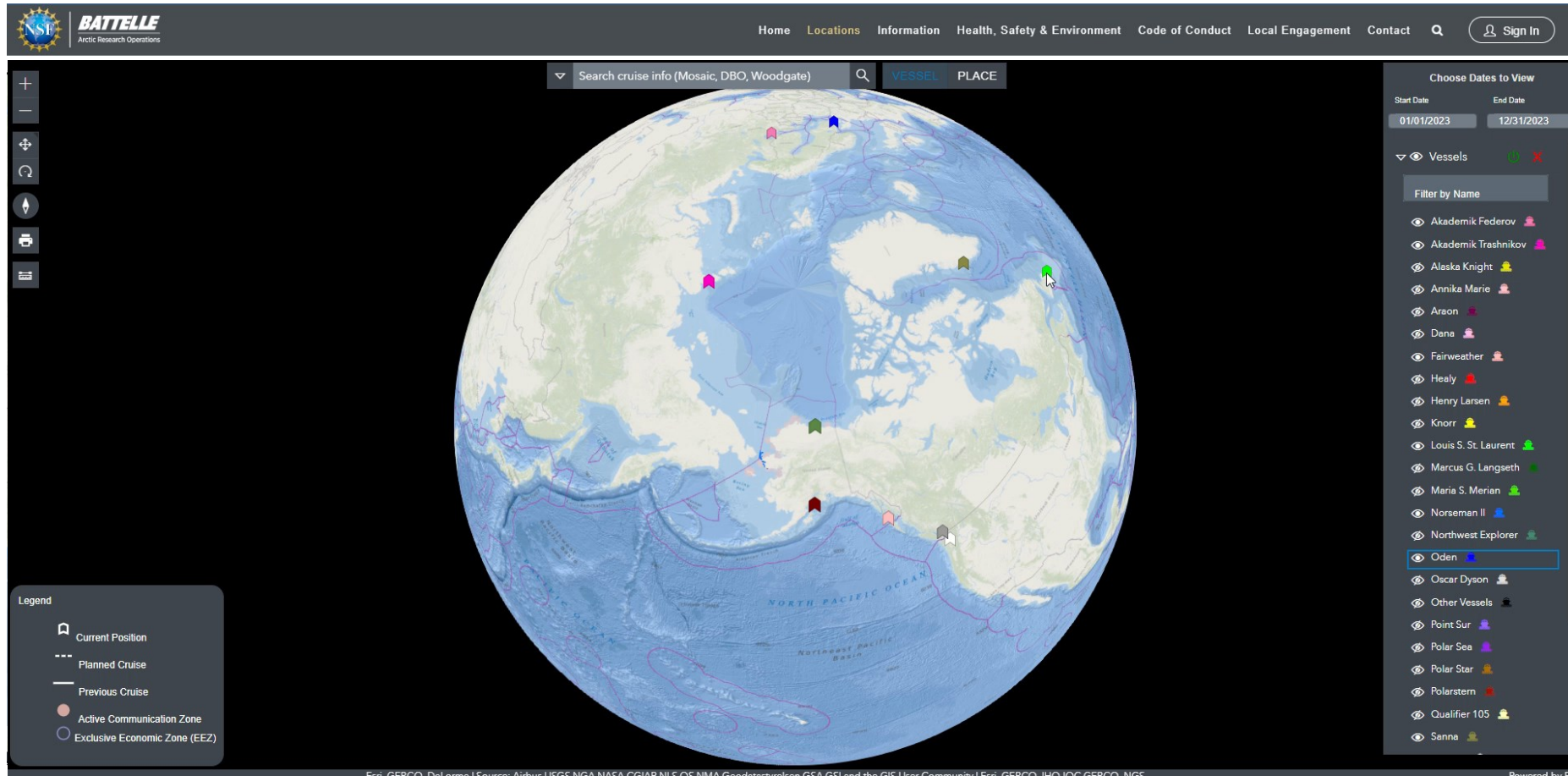


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Arctic Research Operations

Research Cruise Viewer



- Collaboration on field operations via the Interagency Arctic Research Policy Committee (IARPC) has improved access to information about planned vessel research.
- Tracking research vessels keeps coastal subsistence communities informed and helps avoid conflict.

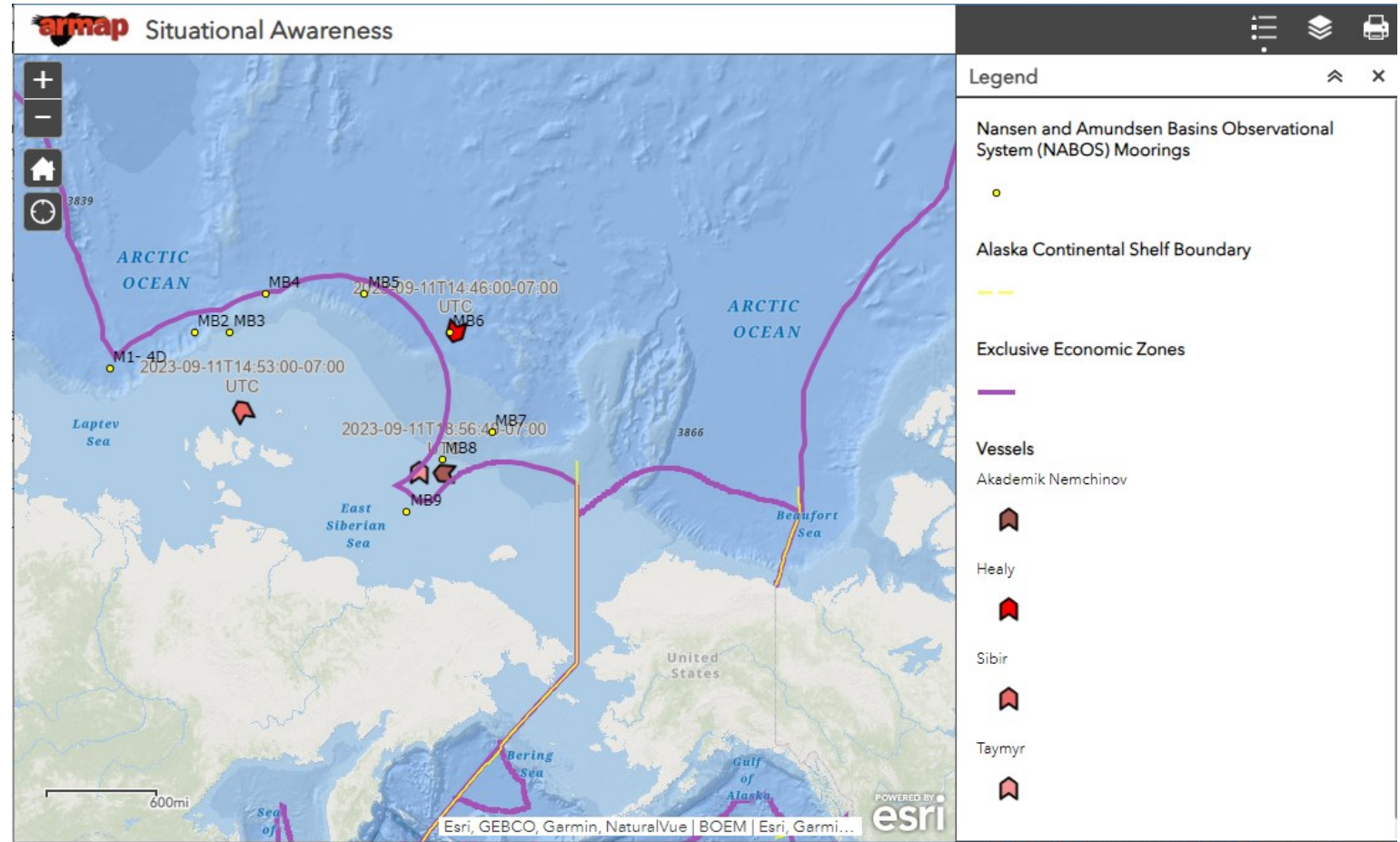


Polar map of NSF supported cruises available to view real time positions, planned routes and historic tracks. Filter by date. Search by researcher, vessel, keyword.
<https://battlearcticgateway.org/program-locations/interactive-maps/vessel-tracking>



Visualizations for Situational Awareness

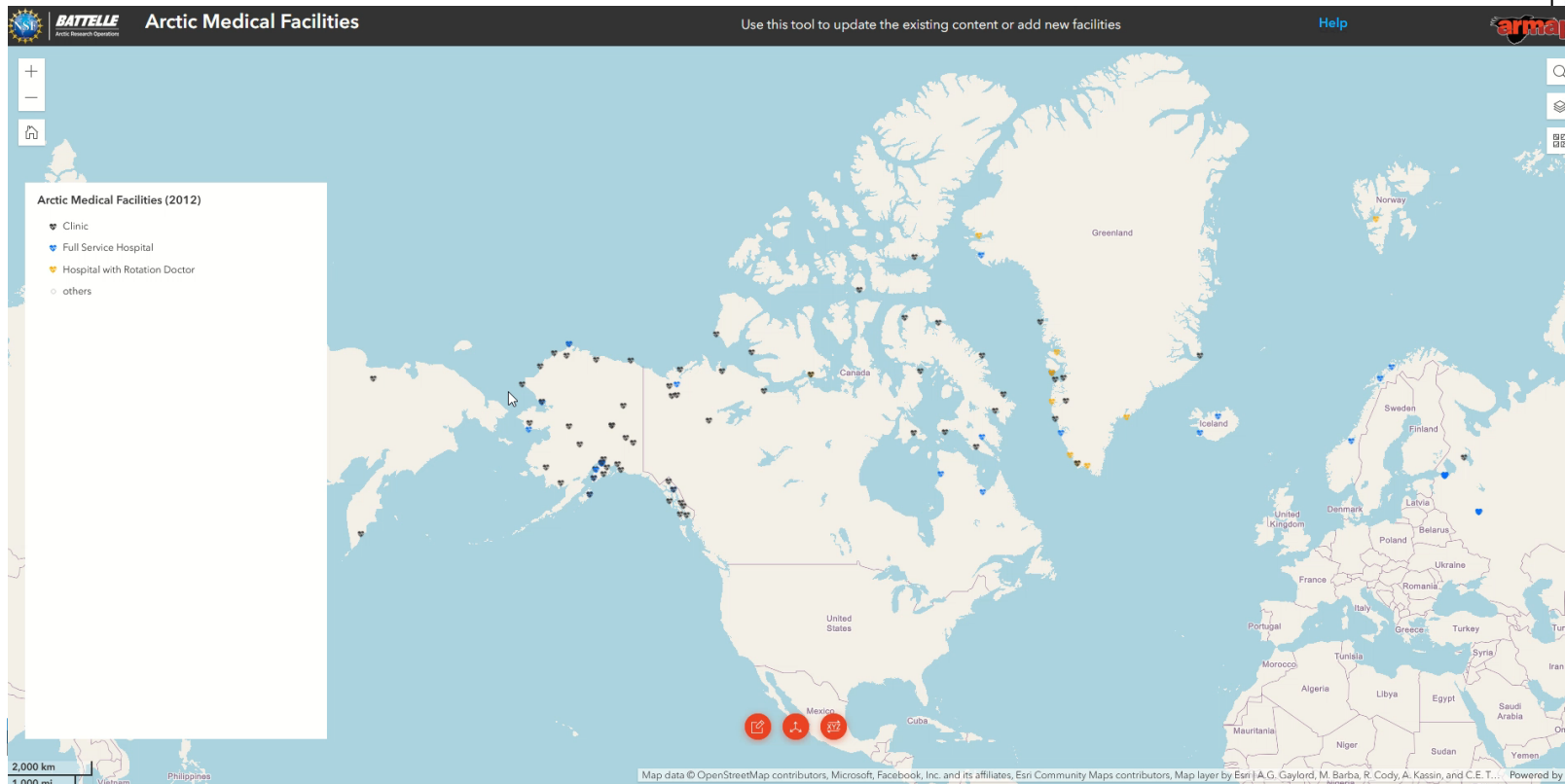
- The progress of the USCG icebreaker Healy through the Bering Strait in support of research efforts in the East Siberian and Laptev Seas garnered interest by NSF leadership and the Interagency Arctic Research Policy Committee in September 2023.



Web map used to monitor positions (via satellite AIS) for key US and Russian icebreakers.

Arctic Medical Facilities Update

- Revisit info compiled in 2012 referencing web services from the State of Alaska, OpenStreetMaps, FAA, OurAirports and local knowledge.



Web Map with editing capability built with ESRI's Experience Builder.



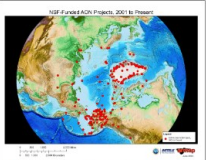
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Arctic Research Operations

Map Gallery


- Includes seasonal activity maps to improve communication with community liaisons.

BATTELLE Arctic Research Operations

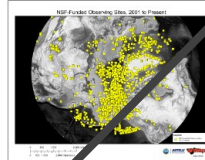
Home Locations Information Health, Safety & Environment Code of Conduct Local Engagement Contact



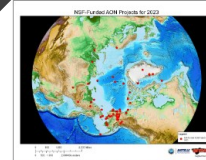
NSF-Funded Observing Sites, 2001 to Present
Circumartic view of Field-based project locations for AON.



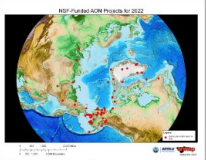
Concentration of Observing Activity
Alaska shown in relations to the Continental US



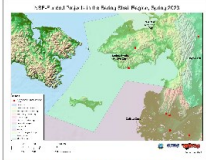
NSF-Funded Observing Sites, 2001 to Present
Circumartic view of Field-based project locations for AON.




NSF-Funded AON Projects this Year
Circumartic view of project locations.



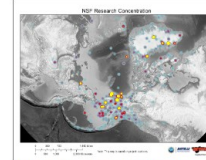
NSF-Funded AON Projects last Year
Circumartic view of project locations.



NSF-Funded Projects in the Bering Strait Region, Spring of this Year
Seasonal map of the region.

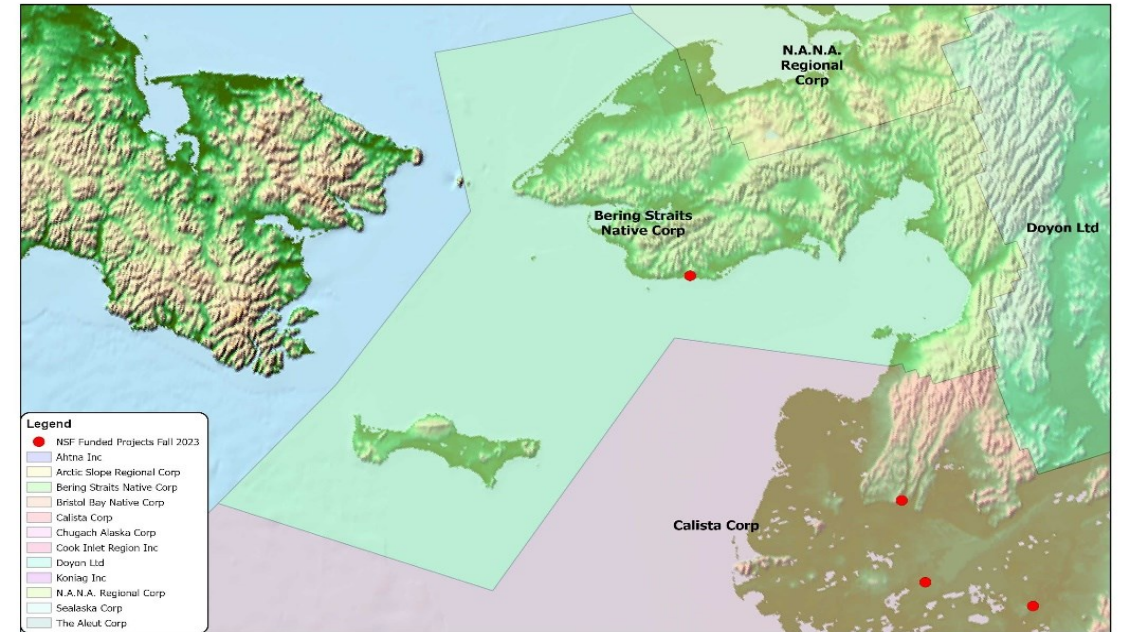


NSF-Funded Projects on the North Slope, Spring of this Year
Seasonal map of the region.



NSF-Supported Research Concentration
Research concentration as depicted by the number of projects at logistics bases across the Arctic.

NSF-Funded Projects in the Bering Strait Region, Fall 2023



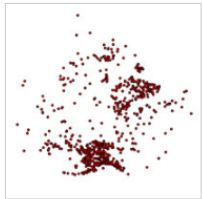
Active NSF Supported Projects

Place	Date_In	Date_Out	PI	Project Title
Bethel	9/30/2023	10/3/2023	West, Michael	An AON-USArray observing network in Arctic Alaska
Nome	9/30/2023	10/3/2023	West, Michael	An AON-USArray observing network in Arctic Alaska
Saint Marys	9/30/2023	10/3/2023	West, Michael	An AON-USArray observing network in Arctic Alaska
PYP Camp	11/29/2023	12/8/2023	Sialis, Soela	Collaborative Research:SiTS: Integrating Novel Greenhouse Gas Sensor Technology with Mechanistic Modeling to Improve Projections of Arctic Soil Responses to Climatic Change and Fire

Interoperability

- Public web services for cross platform data sharing and API access for metadata about grants https://api.battellearcticgateway.org/v1#/ARMAP/get_projects_v1_armap_projects_get

Field Research Project Locations

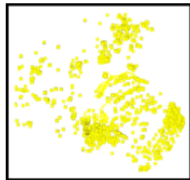


This web service contains the locations and high-level project information for field-based Arctic research projects funded by the **National Science Foundation (NSF)** since 1999. It also includes projects from other agencies (such as NOAA and NASA) that receive logistical support from NSF. Database fields include investigator name, project title, discipline, year, funding agency, a description, and more. The information is pulled from the Munnin logistics database, which is maintained by **Battelle Arctic Research Operations**. Project records conform to an interagency project-tracking metadata standard developed in collaboration with the **Alaska Data Integration Work Group (ADIWG)**. Comparable project-level web services might be available direct from other agencies or organizations shown in the ARMAP Viewer.

ARCGIS DESKTOP ARCGIS ONLINE WMS

If you use ArcGIS Desktop, download this layer service optimized for use in ArcMap document (EPSG 3572). Note that some of our services are

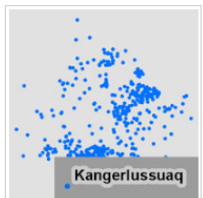
Observing Sites



This web service contains information on observing sites associated with long-term monitoring activities in the circumpolar. The information is actively compiled to enhance strategic planning and assessment for multiple observing networks. Data wrangling efforts have focused on sampling site information for projects funded by the US National Science Foundation's Arctic Observing Network (AON). Additional long-term observing activities funded or coordinated by other US entities and international networks are now included. Site records provide information on initiative, project name, funding agencies, discipline, contact information (name, email, phone, role), award number, program code, place, site name, site IDs, type of observing activity, location accuracy, start date, end date, scientific keywords plus links to archived information and project web links. For more information, see the [About](#) and [Interoperability](#) pages.

- + ArcGIS Desktop
- + ArcGIS Online
- + WMS
- + WFS
- + TXT

Location Placenames

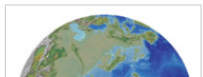


This web service degrees North is maintained by **B** may be useful as

ARCGIS DESKTOP ARCGIS ONLINE WMS

View the [ArcGIS Online page for this service](#) to Contents* to view an ArcGIS REST Services Directory from our server.

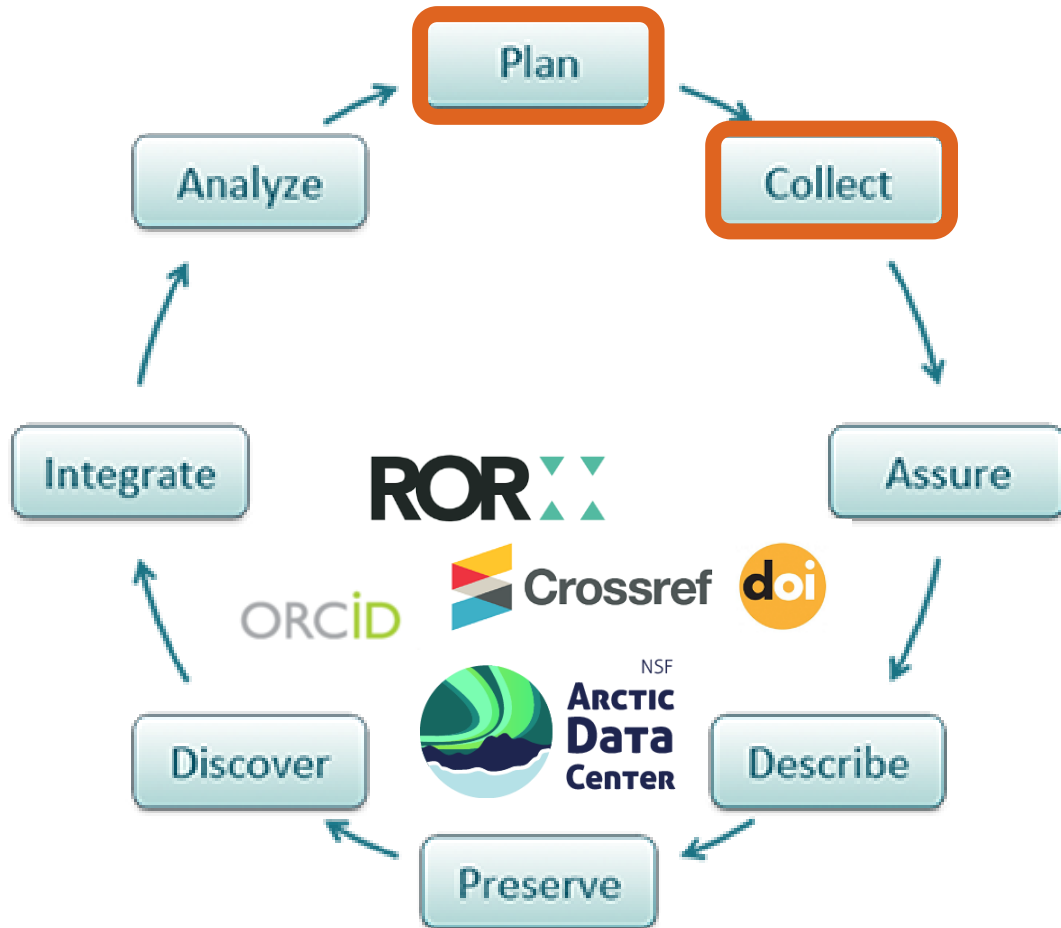
Arctic Base Map



This web service is a base map for the Circumpolar, showing elevation and bathymetry (through use of color ramps plus shaded relief). The map was created from: 1) the Global 30 Arc-Second Elevation dataset (GTOPO30 from the USGS); and 2) the 2-Minute Gridded Global Relief Data (ETOPO2, from NOAA). As



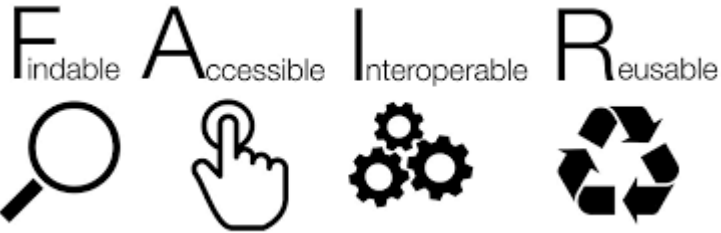
Vision for Connecting the Science Data Life Cycle



- Opportunities to curate info through logistics support work flow.
- Promote re-use of information to reduce duplication of effort.
- Advancing interoperability through integration with registries for researchers, research organizations, data.
- Adoption of persistent identifiers for observation sites next big hurdle.

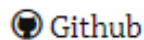
Progress toward interoperability

- Active efforts to facilitate information sharing



Alaska Data Integration Working Group

Working on methods to efficiently integrate and share data.



IARPC COLLABORATIONS Home About Arctic Research Plan Supporting Arctic Research

Planned Research Vessel Movements: 2023 Research Season

Each spring, summer, and fall, numerous research vessels travel through Alaska and Arctic IARPC, federal agencies, and the Alaska Ocean Observing System (AOOS) compile and communicate planned research expedition dates and routes, research goals, and mooring locations. Our hope is that researchers can use this information to coordinate activities, and that communities can use it to understand what vessels are in their waters and how to contact them if necessary.

On this page you will find a spreadsheet with all planned expeditions, brief descriptions of research activities, and a spreadsheet of mooring locations.

The research vessel spreadsheet and descriptions will be periodically updated and emailed out to partners. If you would like to receive updates, [sign up for the email distribution list](#). Please contact [Sarah Tucker](#) (IARPC) and [Katy Smith](#) (NSF) with any questions.

Download the spreadsheet of research expeditions

[Excel](#) | [PDF](#)
Updated August 4, 2023

Download the spreadsheet of mooring locations

RoPON Registry of Polar Observing Networks Home About Contact POAwg SAON ARCTIC PORTAL.org

Systems and related organizations that coordinate or track observing activities & infrastructure in the polar regions.

Work in progress. The RoPON initiative is under development. The information and data are incomplete and their verification is ongoing. The project database and its presentation tools are being implemented and functionality may break without notice. For further information, visit the [About](#) section.

Filter X

Region ▾
Subregion ▾
Domain ▾
Discipline ▾
Asset Type ▾
Asset Catalog? ▾

Search ...

Arctic Research Mapping Application
Region Arctic Subregion multiple
Domain **Atmosphere** Land Ocean
Disciplines **Biology** Cryosphere Data Management Education and Outreach Geological Sciences Instrument Development
Meteorology and Climate Oceanography Social and Human Sciences Space Physics
Asset Types **projects**
Website [armap.org](#)

COMNAP The Council of Managers of National Antarctic Programs
Region Antarctic, Southern Ocean Subregion multiple
Domain **Atmosphere** Land Ocean
Disciplines **Biology** Cryosphere Data Management Education and Outreach Geological Sciences Instrument Development
Meteorology and Climate Oceanography Space Physics
Asset Types **sites** mobile platforms campaigns
Website [comnap.org](#)

DEIMS-SDR Dynamic Ecological Information Management System - Site and Dataset


This information was compiled and verified by IARPC and AOOS in collaboration with the National Science Foundation, National Oceanic and Atmospheric Administration, Department of the Interior, U.S. Coast Guard, Office of Naval Research, and international researchers.

View past research expedition vessel status trackers

- 2022 Resources
- 2021 Resources
- 2020 Resources
- 2019 Resources
- 2018 Resources
- 2017 Resources




Field Research Workspace Concept




[Sign out](#) | [Sign out](#)
 Craig E Tweedie, PhD | Tweedie, PhD


Field Planning Workspace

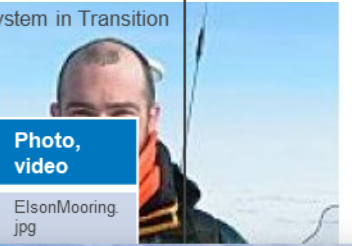
Logistic Plans | Season | Environmental Compliance | **Sites** 1656026 LTER: Beaufort Sea Lagoons: An Arctic Coastal Ecosystem in Transition


Geographic Region | **Award Title** | Add planned sampling sites via form below, upload spreadsheet or GIS shapefile. 

Place Name (Pick List) | 1836861 Collaborative Arctic

Draw proposed area or bounding box below:



PID	Observation Type	Site Name	Longitude	Latitude	Measurements	Site Start	Site End	Photo, video
1656026	Subsurface mooring	Elson East	-156.788	71.29	Currents	2018-08-01		
	Ice mass buoy	Stefansson Lagoon	-156.2345	71.894	Sea Ice > Thickness	2018-01		
	Terrestrial lidar	Simpson Lagoon	-154.12312	70.999	Coastal Erosion	2018-01		
	Meteorologic station	Jago Lagoon	-152.324	70.098	Temperature > Air Temperature	2018-01		
	Plankton tow	Kaktovik Lagoon	-144.1232	70.230	Phytoplankton	2018-01		
	Time-lapse camera	Elson West	-156.788	71.29	Sea Ice > Open water	2018-01		
	Freshwater sample	Kaktovik Lagoon	-144.234	70.789	Zooplankton	2018-08-01		
	Benthic grab	Kaktovik Lagoon	-144.234	70.789	Nutrients	2018-08-01		
	ROV	Jago Lagoon	-144.234	70.789	Fish survey	2018-08-01		



2-3409-8881

utep.edu

8448

Save

Share

Workspace to store and share information related to field logistics, that promotes the re-use of information as much as possible. Project details could be prepopulated from the NSF award database, permits could be uploaded, sampling sites could be stored to facilitate route planning and outreach with communities. Info could be shared with the archives such as the Arctic Data Center to begin to populate catalog records.



BATTELLE
Arctic Research Operations



Allison Gaylord
nunatech@usa.net
<https://battlearcticgateway.org/>