

# armap.org Arctic Research Mapping Application

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## Visualize Project Information for US Funded Research in the Arctic

- 18 funding agencies
- 1100+ project locations
- 2400+ research projects
- 98 cruise tracks
- 5 Public Web Services; >100 Other Web Services
- ISO-19115-2 Metadata
- Data Links provided for most projects
- JavaScript HTML5 Framework
- Advanced Search With Query-Builder

**Abstract:**  
 The Arctic Research Mapping Application (ARMAP; <http://armap.org/>) is a suite of online applications and data services that support Arctic science by providing project tracking information (who's doing what, when and where in the region) for United States Government funded projects. In collaboration with 18 research agencies, project locations are displayed in a visually enhanced web mapping application. Key information about each project is presented along with links to web pages that provide additional information. The mapping application includes new reference data layers and an updated ship tracks layer. Visual enhancements are achieved by redeveloping the front-end from FLEX to HTML5 and JavaScript, which now provide access to mobile users utilizing tablets and cell phone devices. New tools have been added that allow users to navigate, select, draw, measure, print, use a time slider, and more. Other module additions include a back-end Apache SOLR search platform that provides users with the capability to perform advance searches throughout the ARMAP database. Furthermore, a new query builder interface has been developed in order to provide more intuitive controls to generate complex queries. These improvements have been made to increase awareness of projects funded by numerous entities in the Arctic, enhance coordination for logistics support, help identify geographic gaps in research efforts and potentially foster more collaboration amongst researchers working in the region. Additionally, ARMAP can be used to demonstrate past, present, and future research efforts supported by U.S. agencies.

Project Name	Funding Agencies	NSF Funding Program	Award Number	Logistics Support	Disciplines	Location	Subregion	Region	Start Year	End Year	Last Name	First Name
SGER: Surface Deposition and Vertical Transport	NSF	GEOAGS	0000173	Canadian Defense Research Estab. Canada	Environ. Oceanography	Williams Island	Nunavut	Canada	1999	2001	Fuentes	Jose
SGER: Surface Deposition and Vertical Transport	NSF	GEOAGS	0000173	Canadian Defense Research Estab. Canada	Environ. Oceanography	Alert, Ellesmere Island	Nunavut	Canada	1999	2001	Fuentes	Jose
Wind and Wave Patterns in the Earth's Ionosphere	NSF	GEOAGS	0000196	Air National Guard CPS, SRI	Space Physics	Kangerlussuaq	West	Greenland	2000	2005	Kelley	Michael
Wind and Wave Patterns in the Earth's Ionosphere	NSF	GEOAGS	0000196	Air National Guard CPS, SRI	Space Physics	Raven	Ice Cap	Greenland	2000	2005	Kelley	Michael

Search Results ready to be viewed in table below.

Funding\_Agency = 'NSF' AND Start\_Year <= '2015' AND ( End\_Year >= '2015' OR End\_Year IS NULL )

New tools include improved capacities for navigation, feature selection, drawing, measuring, time-slider functionality, advanced search (above), downloading filtered data, printing and animations (right). The advanced search tool benefits from the development of a back-end Apache SOLR search platform and allows users to compile complex queries in a query builder interface (above). Ship tracks from the R2R and other repositories are also included (below).

```

{
  "type": "Feature",
  "geometry": {
    "type": "Point",
    "coordinates": [
      -150.0,
      70.0
    ]
  },
  "properties": {
    "Project Name": "SGER: Surface Deposition and Vertical Transport",
    "Funding Agencies": "NSF",
    "NSF Funding Program": "GEOAGS",
    "Award Number": "0000173",
    "Logistics Support": "Canadian Defense Research Estab. Canada",
    "Disciplines": "Environ. Oceanography",
    "Location": "Williams Island",
    "Subregion": "Nunavut",
    "Region": "Canada",
    "Start Year": "1999",
    "End Year": "2001",
    "Last Name": "Fuentes",
    "First Name": "Jose"
  }
}
    
```

The new prototype ARMAP Viewer (above) has been compiled in a JavaScript HTML5 framework for improved functionality and interoperability and covers activities supported by 18 US agencies for the entire Arctic. ARMAP has partnered with the Alaska Data Integration Working Group (ADIWg), to develop and implement an interagency standard that draws from FGDC for project metadata ~ who's doing what, when and where (left, showing RESTful web service of "Project" metadata in an ISO 19115-1 implementation). Information is gathered from data mining a range of archives and web services (right).

ARMAP is funded by the National Science Foundation Division of Polar Programs Arctic Sciences Section and is a collaborative development effort between the Systems Ecology Lab at the University of Texas at El Paso, Nuna Technologies, the INSTAAR QGIS Laboratory at the University of Colorado, The HDF Group and CH2M HILL Polar Services. Any opinions, findings, conclusions, or recommendations expressed in this material are those of the authors and do not necessarily reflect the views of the US National Science Foundation.

Check out the new ARMAP website at <http://armap.org>

