

DIGITAL SEA ICE ATLAS

Sea ice atlas for Alaska waters

The Alaska Center for Climate Assessment and Policy (ACCAP), the Alaska Ocean Observing System (AOOS), the National Weather Service Anchorage Office (Sea Ice Desk), the National Snow and Ice Data Center (NSIDC), and NOAA's Pacific Environmental Marine Laboratory (PMEL) are working together to produce a digital sea ice atlas by 2013.

Coastal communities, marine navigation, industry (fishing, tourism, offshore resource extraction), the military, and Earth/Arctic system science research have all expressed a clear need for an Alaska sea ice atlas. Indeed, many requests for historical and climatological sea ice information for Alaska coastal waters presently go unanswered because such an atlas does not exist. The availability of GIS software, in-house expertise and historical databases extending back to the 1850s makes the construction of an Alaska sea ice atlas timely and feasible.

The atlas consists of digitally-stored sea ice concentration data on a grid covering all Alaska coastal waters to a distance of ~500 km (300 mi) from shore, with a spatial resolution of 25 km. The time resolution is monthly for the period 1850s-1950s, and weekly for the period from the early 1950s to 2010 with the allowance of subsequent updates.



Photo courtesy of K. Wood

Objectives

- Maximize available information of historical sea ice conditions in Alaska.
- Produce a long-term database to provide a perspective on current changes in sea ice.
- Allow easy online access to data with supporting software.

Feedback

A session held at the 2012 Alaska Forum on the Environment (AFE) garnered input on the design and development of the sea ice atlas. Your input is welcome throughout the development process. Please send questions or comments to John Walsh at jwalsh@iarc.uaf.edu or 907.474.2677.



Primary sources of sea ice data

DATA TYPE	DATA SOURCE	DATES
Satellite passive microwave	NSIDC	1979-present
North American ice center digital data	US National Ice Center	1972-1978
	Canadian Ice Service	1958-1979
Sea ice charts	U.S. Naval Oceanographic Office	1953-1971
	NSIDC, Dehn collection	1953-1979
	NOAA, Alaska Ice Desk	1953-present
Monthly ice charts (May-Sept) and ship reports (winter)	Danish Meteorological Society	1870s-1979
Alaska ship reports (whaling and others)	Center for the Study of the Environment & University of Alaska-Fairbanks (UAF)	1850s-early 1900s