



National Snow and Ice Data Center
Supporting Cryospheric Research Since 1976



NOAA@NSIDC SCICEX Effort

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SCICEX SAC Meeting
Jan. 27 & 28
Washington D.C.



Outline

- ◆ My goal for this meeting
- ◆ Who's looking for the data
- ◆ Where are we with locating data
- ◆ Vision for SCICEX Web site
- ◆ What we need from SCICEX SAC



Goal for this Meeting

- Main Goal: Fill in the holes in the data inventory table
- Other Goals:
 - Get a sense of when the next SAMs will be
 - Ideas for new web site

Crater (Year and Submerger)	CTD Data	BCSD Data	Moored Buoy Data	WLS Data	Bathymetry from LISIS	Flow Bathymetry from SCAMP
1980 USS Fargo	Two sources: • SOCEX Hydrographic Data, 1980 at NCAR BSL • Temperature and moored measurements, 1982 at NOCC Discussion: Data	Temperature, salinity, transponder, and bottom sounding data from moored corer and ACD casts, 1980, 1986, 1996, 1998, 1999, 2000, and 2001 at NOCC Discussion: Data	Two sources: • Temperature, salinity, and moored measurements, 1980 at NOCC • SOCEX Crossed Barium Data, 1980-1981 at NCAR BSL Discussion: Data	SOCEX U.S. data are part of Submarine General Logging System or Drift Profile Data and Bathymetry data set at NOCC Discussion: Data	These data will be available from NOCC in the near future. To obtain the data now, contact NOCC project manager, Jeb Garreaud . Additionally, the International Bathymetry Chart of the Arctic Ocean (IBCO) used these data to create a digital data base that contains all available bathymetric data north of 64°N. Discussion: Data	Yes. The SCAMP instrument used not record this bathymetry.
1985 USS Cavalry	Surface Sealed CTD, 1985 at LDEO LEDC/SOCEX Data: Data	Two Sources: • Temperature, salinity, transponder, and bottom sounding data from moored corer and ACD casts, 1980, 1986, 1996, 1998, 1999, 2000, and 2001 at NOCC • SOCEX casts, 1985 at LDEO LEDC/SOCEX Data: Data	SOCEX Crossed Barium Data, 1985-1987 at NCAR BSL Discussion: Data	Not available. Investigation recorder had a malfunction, so data are unavailable.	These data will be available from NOCC in the near future. To obtain the data now, contact NOCC project manager, Jeb Garreaud . Additionally, the International Bathymetry Chart of the Arctic Ocean (IBCO) used these data to create a digital data base that contains all available bathymetric data north of 64°N. Discussion: Data	No. The SCAMP instrument used not record this bathymetry.
1988 USS Pogo		Temperature, salinity, transponder, and bottom sounding data from moored corer and ACD casts, 1980, 1986, 1996, 1998, 1999, 2000, and 2001 at NOCC Discussion: Data	Two sources: • Moored data and bottom readings, 1986 at LDEO LEDC/SOCEX Data: Bathymetry Data, SOCEX Data • SOCEX Crossed Barium Data, 1985-1987 at NCAR BSL Discussion: Data	SOCEX U.S. data are part of Submarine General Logging System or Drift Profile Data and Bathymetry data set at NOCC Discussion: Data	These data will be available from NOCC in the near future. To obtain the data now, contact NOCC project manager, Jeb Garreaud . Additionally, the International Bathymetry Chart of the Arctic Ocean (IBCO) used these data to create a digital data base that contains all available bathymetric data north of 64°N. Discussion: Data	No. The SCAMP instrument used not record this bathymetry.
1987 USS Annetson	SOCEX Hydrographic Data, 1987 and 1988 at NCAR BSL Discussion: Data	Temperature, salinity, transponder, and bottom sounding data from moored corer and ACD casts, 1980, 1986, 1996, 1998, 1999, 2000, and 2001 at NOCC Discussion: Data	SOCEX Crossed Barium Data, 1983-1987 at NCAR BSL Discussion: Data	SOCEX U.S. data are part of Submarine General Logging System or Drift Profile Data and Bathymetry data set at NOCC Discussion: Data	These data will be available from NOCC in the near future. To obtain the data now, contact NOCC project manager, Jeb Garreaud . Additionally, the International Bathymetry Chart of the Arctic Ocean (IBCO) used these data to create a digital data base that contains all available bathymetric data north of 64°N. Discussion: Data	No. The SCAMP instrument used not record this bathymetry.
1988 USS Herald	SOCEX Hydrographic Data, 1987 and 1988 at NCAR BSL Discussion: Data	Temperature, salinity, transponder, and bottom sounding data from moored corer and ACD casts, 1980, 1986, 1996, 1998, 1999, 2000, and 2001 at NOCC Discussion: Data		SOCEX U.S. data are part of Submarine General Logging System or Drift Profile Data and Bathymetry data set at NOCC Discussion: Data	These data will be available from NOCC in the near future. To obtain the data now, contact NOCC project manager, Jeb Garreaud . Additionally, the International Bathymetry Chart of the Arctic Ocean (IBCO) used these data to create a digital data base that contains all available bathymetric data north of 64°N. Discussion: Data	These data will be available from NOCC in the near future.
1989 USS Herald	Sal Moored CTD, 1989 at MSU MSU/SOCEX Data: Data	Two Sources: • Temperature, salinity, transponder, and bottom sounding data from moored corer and ACD casts, 1980, 1986, 1996, 1998, 1999, 2000, and 2001 at NOCC • ACD casts, 1989 at MSU MSU/SOCEX Data: Data		SOCEX U.S. data are part of Submarine General Logging System or Drift Profile Data and Bathymetry data set at NOCC Discussion: Data	These data will be available from NOCC in the near future. To obtain the data now, contact NOCC project manager, Jeb Garreaud . Additionally, the International Bathymetry Chart of the Arctic Ocean (IBCO) used these data to create a digital data base that contains all available bathymetric data north of 64°N. Discussion: Data	These data will be available from NOCC in the near future.
2000 USS Mendocino (SAMP)		Temperature, salinity, transponder, and bottom sounding data from moored corer and ACD casts, 1980, 1986, 1996, 1998, 1999, 2000, and 2001 at NOCC Discussion: Data		SOCEX U.S. data are part of Submarine General Logging System or Drift Profile Data and Bathymetry data set at NOCC Discussion: Data		No. The SCAMP instrument used not record this bathymetry.
2001 USS Sirenian (SAMP)		Temperature, salinity, transponder, and bottom sounding data from moored corer and ACD casts, 1980, 1986, 1996, 1998, 1999, 2000, and 2001 at NOCC Discussion: Data				No. The SCAMP instrument used not record this bathymetry.
2001 USS Henshaw (SAMP)		Temperature, salinity, transponder, and bottom sounding data from moored corer and ACD casts, 1980, 1986, 1996, 1998, 1999, 2000, and 2001 at NOCC Discussion: Data				No. The SCAMP instrument used not record this bathymetry.
2005 USS One Line City (SAMP)		Temperature, salinity, transponder, and bottom sounding data from moored corer and ACD casts, 1980, 1986, 1996, 1998, 1999, 2000, and 2001 at NOCC Discussion: Data		SOCEX U.S. data are part of Submarine General Logging System or Drift Profile Data and Bathymetry data set at NOCC Discussion: Data		No. The SCAMP instrument used not record this bathymetry.

Who's Looking at the Data

- People are looking at jump page: 1000+ hits since going live in March 2010
- Received emails regarding SCICEX data: CTD, bathymetric, and ULS data
- From: Universities, research organizations, naval organizations



Google analytics graph, March 1 – December 31 2010

Locating Data Effort

- The SCICEX Data Inventory lists where to find known data (went live August 2010):
http://nsidc.org/noaa/scicex/data_inventory.html
- Located majority of the data from the dedicated missions
- Bathymetry data found, not available yet (Need processed SCAMP data)
- Missing:
 - 1996 CTD
 - 1998 and 1999 nutrient bottle data

Locating Data Effort Cont'd

- Fewer data have been found for the 4 SAMs (2000, 2001, 2003, and 2005)
- Missing:
 - CTD, Nutrient Bottle Data, and Bathymetry for all 4 (were measurements taken for these?)
 - XCTD for 2000, 2003, and 2005
 - ULS for 2001 and 2003

Locating Data Effort Cont'd

- Some SCICEX data in the these atlases:
 - SDRS bathymetric data in NGDC's IBCAO
 - PSC Unified Sea Ice Thickness CDR
 - PSC Hydrographic Climatology (PHC)

Data Inventory Table

http://nsidc.org/noaa/scicex/data_inventory.html

Cruise (Year and Submarine)	CTD Data	XCTD Data	Nutrient Bottle Data	ULS Data	Bathymetry from SDRS	Raw Bathymetry from SCAMP
1993 USS Pargo	Two sources: • SCICEX Hydrographic Data, 1993 at NCAR EOL Description :: Data • Temperature and salinity measurements, 1993 at NODC Description :: Data	Temperature, salinity, topsounder, and bottom sounding data from onboard sonar and XCTD casts, 1993, 1995, 1996, 1997, 1998, 1999, and 2001 at NODC Description :: Data	Two sources: • Temperature, salinity, and nutrient measurements, 1993 at NODC Description :: Data • SCICEX Dissolved Barium Data, 1993-1997 at NCAR EOL Description :: Data	SCICEX ULS data are part of <i>Submarine Upward Looking Sonar Ice Draft Profile Data and Statistics</i> data set at NSIDC Description :: Data	These data will be available from NGDC in the near future. To obtain the data now, contact NSIDC SCICEX project manager, Ann Windhagel . Additionally, the International Bathymetric Chart of the Arctic Ocean (IBCAO) used these data to create a digital data base that contains all available bathymetric data north of 64° N.	N/A. The SCAMP instrument was not aboard this submarine.
1995 USS Cavalla	Surface Seabird CTD, 1995 at LDEO LDEO SCICEX Page :: Data	Two Sources: • Temperature, salinity, topsounder, and bottom sounding data from onboard sonar and XCTD casts, 1993, 1995, 1996, 1997, 1998, 1999, and 2001 at NODC Description :: Data • XCTD casts, 1995 at LDEO LDEO SCICEX Page :: Data	SCICEX Dissolved Barium Data, 1993-1997 at NCAR EOL Description :: Data	Not available. Navigation recorder had a malfunction, so data are unusable.	These data will be available from NGDC in the near future. To obtain the data now, contact NSIDC SCICEX project manager, Ann Windhagel . Additionally, the International Bathymetric Chart of the Arctic Ocean (IBCAO) used these data to create a digital data base that contains all available bathymetric data north of 64° N.	N/A. The SCAMP instrument was not aboard this submarine.
1996 USS Pogoy	CTD	Temperature, salinity, topsounder, and bottom sounding data from onboard sonar and XCTD casts, 1993, 1995, 1996, 1997, 1998, 1999, and 2001 at NODC Description :: Data	Two sources: • Nutrient data and bottle salinities, 1996 at LDEO LDEO SCICEX Page :: Nutrient Data :: Bottle Salinity Data • SCICEX Dissolved Barium Data, 1993-1997 at NCAR EOL Description :: Data	SCICEX ULS data are part of <i>Submarine Upward Looking Sonar Ice Draft Profile Data and Statistics</i> data set at NSIDC Description :: Data	These data will be available from NGDC in the near future. To obtain the data now, contact NSIDC SCICEX project manager, Ann Windhagel . Additionally, the International Bathymetric Chart of the Arctic Ocean (IBCAO) used these data to create a digital data base that contains all available bathymetric data north of 64° N.	N/A. The SCAMP instrument was not aboard this submarine.
1997 USS Archerfish	SCICEX Hydrographic Data, 1997 and 1998 at NCAR EOL Description :: Data	Temperature, salinity, topsounder, and bottom sounding data from onboard sonar and XCTD casts, 1993, 1995, 1996, 1997, 1998, 1999, and 2001 at NODC Description :: Data	SCICEX Dissolved Barium Data, 1993-1997 at NCAR EOL Description :: Data	SCICEX ULS data are part of <i>Submarine Upward Looking Sonar Ice Draft Profile Data and Statistics</i> data set at NSIDC Description :: Data	These data will be available from NGDC in the near future. To obtain the data now, contact NSIDC SCICEX project manager, Ann Windhagel . Additionally, the International Bathymetric Chart of the Arctic Ocean (IBCAO) used these data to create a digital data base that contains all available bathymetric data north of 64° N.	N/A. The SCAMP instrument was not aboard this submarine.
1998 USS Hawkbill	SCICEX Hydrographic Data, 1997 and 1998 at NCAR EOL Description :: Data	Temperature, salinity, topsounder, and bottom sounding data from onboard sonar and XCTD casts, 1993, 1995, 1996, 1997, 1998, 1999, and 2001 at NODC Description :: Data		SCICEX ULS data are part of <i>Submarine Upward Looking Sonar Ice Draft Profile Data and Statistics</i> data set at NSIDC Description :: Data	These data will be available from NGDC in the near future. To obtain the data now, contact NSIDC SCICEX project manager, Ann Windhagel . Additionally, the International Bathymetric Chart of the Arctic Ocean (IBCAO) used these data to create a digital data base that contains all available bathymetric data north of 64° N.	These data will be available from NGDC in the near future.
1999 USS Hawkbill	Sail Mount CTD, 1999 at IMS IMS SCICEX-99 Page :: Data	Two Sources: • Temperature, salinity, topsounder, and bottom sounding data from onboard sonar and XCTD casts, 1993, 1995, 1996, 1997, 1998, 1999, and 2001 at NODC Description :: Data • XCTD data, 1999 at IMS IMS SCICEX-99 Page :: Data	Bottle Data	SCICEX ULS data are part of <i>Submarine Upward Looking Sonar Ice Draft Profile Data and Statistics</i> data set at NSIDC Description :: Data	These data will be available from NGDC in the near future. To obtain the data now, contact NSIDC SCICEX project manager, Ann Windhagel . Additionally, the International Bathymetric Chart of the Arctic Ocean (IBCAO) used these data to create a digital data base that contains all available bathymetric data north of 64° N.	These data will be available from NGDC in the near future.
2000 USS L Mendel Rivers (SAM)		XCTD		SCICEX ULS data are part of <i>Submarine Upward Looking Sonar Ice Draft Profile Data and Statistics</i> data set at NSIDC Description :: Data		N/A. The SCAMP instrument was not aboard this submarine.
2001 USS Scranton (SAM)	CTD	Temperature, salinity, topsounder, and bottom sounding data from onboard sonar and XCTD casts, 1993, 1995, 1996, 1997, 1998, 1999, and 2001 at NODC Description :: Data		ULS		N/A. The SCAMP instrument was not aboard this submarine.
2003 USS Honolulu (SAM)	CTD				Bathymetry	N/A. The SCAMP instrument was not aboard this submarine.
2005 USS Salt Lake City (SAM)		XCTD		SCICEX ULS data are part of <i>Submarine Upward Looking Sonar Ice Draft Profile Data and Statistics</i> data set at NSIDC Description :: Data		N/A. The SCAMP instrument was not aboard this submarine.

Vision for SCICEX Web Site

- More than just a jump page...
- Currently imbedded in NOAA@NSIDC Web site
- All info crammed in 2 pages

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The Science Ice Exercise (SCICEX)



The USS Archerfish on the surface during SCICEX-97. Image courtesy of the U.S. Navy.

The Science Ice Exercise (SCICEX) program is a collaboration between the U.S. Navy and the marine research community to utilize nuclear-powered submarines for the study of the Arctic Ocean. Unlike surface ships, submarines have the unique and valuable ability to operate and take measurements regardless of sea ice cover and weather conditions. The goal of the program is to acquire comprehensive data about Arctic sea ice, water properties, and bathymetry.



Steve Okonnen (UAF) processing through-hull water samples in the forward part of the torpedo room during SCICEX-99. From Edwards and Coakley (2003).

SCICEX was officially founded in 1994 after a successful feasibility test that took place in 1993 where civilian scientists joined naval personnel on the submarine to acquire scientific data. SCICEX data provide an extraordinary volume of ice draft measurements from upward-looking sonar and depth soundings from side-scan and other sonar. These measurements constitute one of the most complete mappings available of ice thickness in the central Arctic Basin and provide orders of magnitudes more bathymetry data of the region than previously acquired.

SCICEX is important because it adds critical pieces to the overall information needed to analyze sea ice and ocean dynamics — ice thickness and bathymetry data in particular but also chemical, biological, and physical oceanographic data. With the success of the initial project in 1993, the U.S. Navy and the National Science Foundation (NSF) signed a Memorandum of Agreement (MOA) in 1994 that called for five more dedicated SCICEX missions. The dedicated SCICEX cruises occurred in 1995, 1996, 1997, 1998, and 1999.

This site is supported by NSF award number 0632296 for the Arctic Observing Network (AON).

[Read more \(show/hide full description\)](#)



For more information or to contribute data, contact NSIDC SCICEX project manager, [Ann Windnager](#).

SCICEX Data

[See the SCICEX Data Inventory and Locations Table](#)

Related Publications

SCICEX Science Advisory Committee. 2010. *SCICEX Phase II Science Plan, Part I: Technical Guidance for Planning Science Accommodation Missions*. US Arctic Research Commission, Arlington, VA, 76 pp.



[This figure shows both](#)

Related NSIDC Data

[Submarine Upward Looking Sonar Ice Draft Profile Data and Statistics](#)
This data set consists of upward looking sonar draft data collected by submarines in the Arctic Ocean. It includes data from both U.S. Navy and Royal Navy submarines.

[Moored Upward Looking Sonar Data](#)
Web page listing moored ULS data sets at NSIDC.

[The Arctic Ice Dynamics Joint Experiment \(AIDJEX\)](#)
Web page describing the 1970s AIDJEX project in which researchers maintained four manned camps on ice floes in the Beaufort Sea.

[Ice Draft and Ice Velocity Data in the Beaufort Sea, 1990-2003](#)
This data set provides measurement of sea ice draft (m) and the movement of sea ice (cm/s) over the continental shelf of the Eastern Beaufort Sea.

AON

Vision for SCICEX Web Site

- Make it its own site
<http://nsidc.org/scicex>
- Have own navigation and header
- Pages for Overview, Data Inventory, References, Gallery, Personnel, News
- Slideshow & See Also

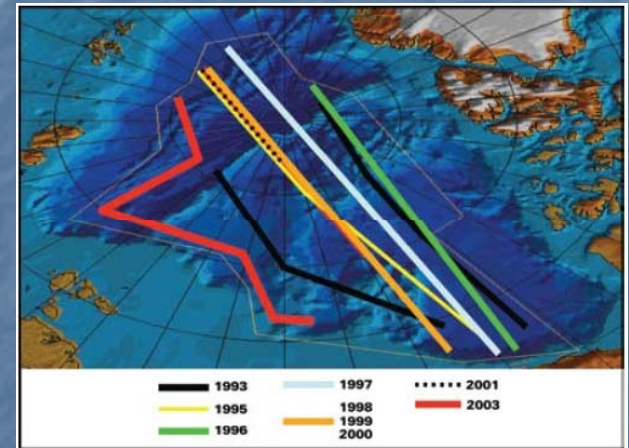


Example page from IceBridge Project

See Also & Related Links

What We Need from You

- Help fill in data table
- SCICEX logo: Is there one?
- Crew for the past SAMs
- When are the next SAMs
- New publications
- Processed SCAMP data
- High-res version of submarine tracks from Phase II Plan (what about 2005 track?)
- SCICEX Photos



Thank You!



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