

The purpose of this data collection is to preserve and distribute physical and chemical data from the Arctic Ocean that have been compiled through a cooperative international effort involving the United States, Canada, Germany, Sweden, and Russia. The original data, collected sporadically since 1950, were collected during icebreaker and conventional research vessel cruises and from ice camps using traditional wire casts, CTD (conductivity, temperature, depth) casts, and CTD/rosette casts. Also included are positional data and, for some expeditions, derived measurements of oxygen, nutrients, and alkalinity.

Collection Documentation

Note: This documentation describes aspects of the overall data collection. For information about parameters and coverages of specific data sets, please refer to individual [data set overviews](#).

Summary

The purpose of this data collection is to preserve and distribute physical and chemical data from the Arctic Ocean that have been compiled through a cooperative international effort involving the United States, Canada, Germany, Sweden, and Russia. The original data, collected sporadically since 1950, were collected during icebreaker and conventional research vessel cruises and from ice camps using traditional wire casts, CTD (conductivity, temperature, depth) casts, and CTD/rosette casts. Also included are positional data and, for some expeditions, derived measurements of oxygen, nutrients, and alkalinity.

Data were not collected under the direction of one project, nor with the original intention of distributing them together; therefore the original data files are in a variety of formats. The National Snow and Ice Data Center (NSIDC) converted the data into National Oceanographic Data Center (NODC) format with assistance from David Muus of UCSD/SIO. No adjustments have been made to the data values; however, data predating 1979 are not included in the reformatted data. In some instances, during translation into the NODC format high-resolution CTD data were resampled to a lower resolution using a nearest-neighbor method during translation. The original resolution is preserved in the raw data files, which are also available in most cases. All data are available for unrestricted use by the public.

Citing These Data

Users should cite this data set and documentation where appropriate. Citations should be worded as follows:

Swift, J. compiler. 2002. Physical and chemical properties from selected expeditions in the Arctic Ocean. Edited by R. Dichtl, Y. Axford, and T. Haran. Boulder, CO: National Snow and Ice Data Center. Digital media.

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1. Contacts and Acknowledgments

Technical Contact

Please direct inquiries regarding this data collection to codiac AT ucar DOT edu

Investigators

Data represent the work of numerous investigators. Please refer to individual data set summaries for investigator information.

2. Detailed Data Description

Coverage and resolution

Data have been collected sporadically since 1950 at sites throughout the Arctic Ocean. Individual data set overviews describe the precise spatial and temporal coverages of each individual data set.

Parameter descriptions

Each individual data set includes some combination of the following parameters:

CTD data sets:

pressure
temperature
salinity
sigma-T

Bottle data sets:

temperature
salinity
sigma-T
sound speed (through the water)
oxygen
phosphate
phosphorus
silicate
nitrite
nitrate
pH

Data format

Data are available as ASCII files, formatted using NODC file structures.

Data samples

Sample CTD data

```
022      1cb001
Station id: 001      1
022      2cb001753243N1435955W      aidjex      750514 630
01035
022      6cb00100051-165330381      00053-165430382      00054-
165630386      00056-165530385      00059-165430388      1
022      6cb00100062-165830388      00063-165630387      00065-
```

165330387	00067-165630387	00068-165630388	2
022	6cb00100072-165530388	00073-165430388	00075-
165630388	00076-165230387	00079-165230388	3
022	6cb00100082-165430391	00083-165830391	00084-
165830390	00086-165330388	00087-165630390	4
022	6cb00100088-165530390	00090-165330390	00091-
165330391	00092-165430391	00094-165630390	5
022	6cb00100095-165630390	00097-165430390	00099-
165330391	00101-165630393	00103-165530392	6
022	6cb00100104-165330393	00109-165430393	00110-
165230393	00112-164930393	00115-165030394	7
022	6cb00100116-165330392	00118-165230392	00120-
165430394	00123-165730394	00124-165530394	8

Sample bottle data

	19	771443421N74116W1435212850401189	3700
P	0010368621		
0014		001	X X 9 9X
32	32	32	
	3	9 301883	9212 1891 9
9	9 01	33	
	10	-16253 301953	9282 1891 9
9	9 01	33	
	25	-16392 301983	9322 1891 9
9	9 01	33	
	49	-14603 310113	9442 1891 9
9	9 01	33	
	76	-13083 317653	8552 1891 9
9	9 491	33	
	101	-13723 322733	7382 1891 9
9	91061	33	
	151	-14993 328483	6602 1891 9
9	91561	33	
	202	-14893 333293	6372 1891 9
9	91691	33	

3. Data Access and Tools

Data access

Data are available free via ftp for unrestricted public use.

Related data sets

The following oceanographic data sets archived by the National Center for Atmospheric Research may be of additional interest:

Chemical and Isotopic Tracers from the Arctic Ocean
<http://data.eol.ucar.edu/codiac/dss/id=106.ARCSS079>

SCICEX Dissolved Barium Data, 1993-1997
<http://data.eol.ucar.edu/codiac/dss/id=106.ARCSS070>

SCICEX Hydrographic Data, 1993
<http://data.eol.ucar.edu/codiac/dss/id=106.ARCSS072>

SCICEX Hydrographic Data, 1997 and 1998
<http://data.eol.ucar.edu/codiac/dss/id=106.ARCSS064>

Chemical and Isotopic Tracers from the Arctic Ocean
<http://data.eol.ucar.edu/codiac/dss/id=106.ARCSS079>

4. Data Acquisition and Processing

Data sources

Data are currently available from the following cruises/projects:

CTD data:

CCGS Louis S. St-Laurent Cruise AOS-94 Cruise and Helicopter Data
Beaufort Sea Cruises and Ice Stations, and
North Water Polynya Aircraft Surveys
Northern Oil and Gas Action Program (NOGAP)
Oden91 Cruise 1991
PFS Polarstern Cruise Arktis II/3
PFS Polarstern Cruise Arktis IV/3

Bottle data:

Arctic Internal Wave Experiment (AIWEX)
CCGS Louis S. St-Laurent Cruise AOS-94
Oden91 Cruise 1991
PFS Polarstern Cruise Arktis II/3
PFS Polarstern Cruise Arktis IV/3

Sampling strategies

Bottle sampling

Bottle data are collected using individual bottles or rosettes of 12, 24 or 36 bottles each. Samples obtained from ice camps are typically collected using individual bottles mounted on a hydrographic wire at chosen intervals and closed via messengers. Bottle rosettes are designed so that, as they are lowered into the water, each bottle will close at a given depth and collect an isolated water sample at that depth. After the samples are brought to the surface, water is sub-sampled for laboratory testing.

CTD measurements

CTD probes measure real-time conductivity, temperature, and depth. A large number of seawater parameters, including salinity, density, and sound velocity, can be derived from CTD data.

Derived variables

oxygen, alkalinity, nutrients

5. References and Related Publications

Listings of related publications are available for some data sets. Please refer to individual data set descriptions.

Document Information

Glossary and Acronyms

ADCC	ARCSS Data Coordination Center
AIWEX	Arctic Internal Wave Experiment
ARCSS	Arctic System Sciences
ASCII	American Standard Code for Information Interchange
CTD	Conductivity, Temperature, Depth
ftp	file transfer protocol
NASA	National Aeronautics and Space Administration
NODC	National Oceanographic Data Center
NOGAP	Northern Oil and Gas Action Plan
NSF	National Science Foundation

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Acknowledgments

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