

# Pump cast logs from GEOTRACES-Arctic Section cruise HLY1502 in 2015 (U.S. GEOTRACES Arctic project)

**Website:** <https://www.bco-dmo.org/dataset/647562>

**Data Type:** Cruise Results

**Version:** 2

**Version Date:** 2019-07-08

## Project

» [U.S. Arctic GEOTRACES Study \(GN01\)](#) (U.S. GEOTRACES Arctic)

## Program

» [U.S. GEOTRACES](#) (U.S. GEOTRACES)

Contributors	Affiliation	Role
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## Abstract

Pump cast logs from GEOTRACES-Arctic Section cruise HLY1502 in 2015.

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## Coverage

**Spatial Extent:** N:89.997 E:43.0982 S:60.2239 W:-147.7413

**Temporal Extent:** 2015-08-12 - 2015-10-08

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## Dataset Description

Hand-written McLane pump cast logs from GEOTRACES-Arctic Section cruise HLY1502 (pdf files).

### Code definitions:

#### Event descriptions:

unknown / not entered = nd

Small boat sampling = Sboat

McLane pump profile = McL-Prof

### Samples taken:

unknown/ not recorded = nd

dissolved and particulate samples = diss+part

filter for particulates = filter

## Data Processing Description

### BCO-DMO Processing:

- added conventional header with dataset name; PI name; version date;
- created dataset from list of file names; added cruise\_id, event #, station, and cast columns;
- created links to .pdf files;
- joined this dataset with eventlog v2 dataset to provide date/time/location, etc.;
- 2019-07-08: removed event #6023 (small boat event) by request of data submitter.

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## Data Files

File
<b>pump_logs_joined.csv</b> (Comma Separated Values (.csv), 14.45 KB) MD5:8c2f8d31ad64251f68c48e49eee7375d Primary data file for dataset ID 647562

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## Parameters

Parameter	Description	Units
cruise_id	cruise identification	unitless
inst	sampling instrument	unitless
GEOTRC_EVENTNO	Geotraces event number	unitless
STNNBR	Geotraces station number	unitless
cast_log	cast number provided by PI	unitless
cast	cast number	unitless
event_description	Event Description Event Description Codes: see description section	unitless
samples_taken	Samples Taken Codes: see description section	unitless
filename	log file name	unitless
LOCATION	location descriptor (typically station id)	unitless
DATE_START	Start date (GMT): yyyyymmdd	year month and day
TIME_START	Start time (GMT): HHMM	hours and minutes
ISO_DateTime.UTC_START	Start date/time ISO formatted: YYYY-MM-DDTHH:MM:SS[.xx]Z	year month day hours minutes
DATE_END	End date (GMT)	year month and day
TIME_END	End time (GMT)	hours and minutes
ISO_DateTime.UTC_END	End date/time ISO formatted: YYYY-MM-DDTHH:MM:SS[.xx]Z	year month day hours minutes
LAT_DEG_N	Latitude degrees north	degrees
LAT_MIN_N	Latitude minutes north	decimal minutes
LATITUDE	Latitude; north is positive	decimal degrees
LON_DEG_W	Longitude degrees west	degrees
LON_MIN_W	Longitude minutes west	decimal minutes
LONGITUDE	Longitude; east is positive	decimal degrees
DEPTH_MIN	Minimum depth	meters
DEPTH_MAX	Maximum depth	meters

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## Instruments

<b>Dataset-specific Instrument Name</b>	
<b>Generic Instrument Name</b>	McLane Pump
<b>Generic Instrument Description</b>	McLane pumps sample large volumes of seawater at depth. They are attached to a wire and lowered to different depths in the ocean. As the water is pumped through the filter, particles suspended in the ocean are collected on the filters. The pumps are then retrieved and the contents of the filters are analyzed in a lab.

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## Deployments

### HLY1502

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/638807">https://www.bco-dmo.org/deployment/638807</a>
<b>Platform</b>	USCGC Healy
<b>Report</b>	<a href="https://datadocs.bco-dmo.org/docs/302/geotraces/GEOTRACES_ARCTIC/data_docs/cruise_reports/healy1502.pdf">https://datadocs.bco-dmo.org/docs/302/geotraces/GEOTRACES_ARCTIC/data_docs/cruise_reports/healy1502.pdf</a>
<b>Start Date</b>	2015-08-09
<b>End Date</b>	2015-10-12
<b>Description</b>	Arctic transect encompassing Bering and Chukchi Shelves and the Canadian, Makarov and Amundsen sub-basins of the Arctic Ocean. The transect started in the Bering Sea (60°N) and traveled northward across the Bering Shelf, through the Bering Strait and across the Chukchi shelf, then traversing along 170-180°W across the Alpha-Mendeleev and Lomonosov Ridges to the North Pole (Amundsen basin, 90°N), and then back southward along ~150°W to terminate on the Chukchi Shelf (72°N). Additional cruise information is available in the GO-SHIP Cruise Report (PDF) and from the Rolling Deck to Repository (R2R): <a href="https://www.rvdata.us/search/cruise/HLY1502">https://www.rvdata.us/search/cruise/HLY1502</a>

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## Project Information

### U.S. Arctic GEOTRACES Study (GN01) (U.S. GEOTRACES Arctic)

**Website:** <https://www.geotraces.org/>

**Coverage:** Arctic Ocean; Sailing from Dutch Harbor to Dutch Harbor (GN01)

#### *Description from NSF award abstract:*

In pursuit of its goal "to identify processes and quantify fluxes that control the distributions of key trace elements and isotopes in the ocean, and to establish the sensitivity of these distributions to changing environmental conditions", in 2015 the International GEOTRACES Program will embark on several years of research in the Arctic Ocean. In a region where climate warming and general environmental change are occurring at amazing speed, research such as this is important for understanding the current state of Arctic Ocean geochemistry and for developing predictive capability as the regional ecosystem continues to warm and influence global oceanic and climatic conditions. The three investigators funded on this award, will manage a large team of U.S. scientists who will compete through the regular NSF proposal process to contribute their own unique expertise in marine trace metal, isotopic, and carbon cycle geochemistry to the U.S. effort. The three managers will be responsible for arranging and overseeing at-sea technical services such as hydrographic measurements, nutrient analyses, and around-the-clock management of on-deck sampling activities upon which all participants depend, and for organizing all pre- and post-cruise technical support and scientific meetings. The management team will also lead educational outreach activities for the general public in Nome and Barrow, Alaska, to explain the significance of the study to these communities and to learn from residents' insights on observed changes in the marine system. The project itself will provide for the support and training of a number of pre-doctoral students and post-doctoral researchers. Inasmuch as the Arctic Ocean is an epicenter of global climate change, findings of this study are expected to advance present capability to forecast changes in regional and global ecosystem and climate system functioning.

As the United States' contribution to the International GEOTRACES Arctic Ocean initiative, this project will be part of an ongoing multi-national effort to further scientific knowledge about trace elements and isotopes in the world ocean. This U.S. expedition will focus on the western Arctic Ocean in the boreal summer of 2015. The scientific team will consist of the management team funded through this award plus a team of scientists from U.S. academic institutions who will have successfully competed for and received NSF funds for specific science projects in time to participate in the final stages of cruise planning. The cruise track segments will include the

Bering Strait, Chukchi shelf, and the deep Canada Basin. Several stations will be designated as so-called super stations for intense study of atmospheric aerosols, sea ice, and sediment chemistry as well as water-column processes. In total, the set of coordinated international expeditions will involve the deployment of ice-capable research ships from 6 nations (US, Canada, Germany, Sweden, UK, and Russia) across different parts of the Arctic Ocean, and application of state-of-the-art methods to unravel the complex dynamics of trace metals and isotopes that are important as oceanographic and biogeochemical tracers in the sea.

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## Program Information

### U.S. GEOTRACES (U.S. GEOTRACES)

**Website:** <http://www.geotraces.org/>

**Coverage:** Global

**GEOTRACES** is a [SCOR](#) sponsored program; and funding for program infrastructure development is provided by the [U.S. National Science Foundation](#).

GEOTRACES gained momentum following a special symposium, S02: Biogeochemical cycling of trace elements and isotopes in the ocean and applications to constrain contemporary marine processes (GEOSECS II), at a 2003 Goldschmidt meeting convened in Japan. The GEOSECS II acronym referred to the Geochemical Ocean Section Studies To determine full water column distributions of selected trace elements and isotopes, including their concentration, chemical speciation, and physical form, along a sufficient number of sections in each ocean basin to establish the principal relationships between these distributions and with more traditional hydrographic parameters;

- \* To evaluate the sources, sinks, and internal cycling of these species and thereby characterize more completely the physical, chemical and biological processes regulating their distributions, and the sensitivity of these processes to global change; and

- \* To understand the processes that control the concentrations of geochemical species used for proxies of the past environment, both in the water column and in the substrates that reflect the water column.

GEOTRACES will be global in scope, consisting of ocean sections complemented by regional process studies. Sections and process studies will combine fieldwork, laboratory experiments and modelling. Beyond realizing the scientific objectives identified above, a natural outcome of this work will be to build a community of marine scientists who understand the processes regulating trace element cycles sufficiently well to exploit this knowledge reliably in future interdisciplinary studies.

Expand "Projects" below for information about and data resulting from individual US GEOTRACES research projects.

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## Funding

<b>Funding Source</b>	<b>Award</b>
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-1355913</a>
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-1355833</a>
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-1356008</a>
<a href="#">NSF Division of Ocean Sciences (NSF OCE)</a>	<a href="#">OCE-1455924</a>

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