

Cruise track from the RVIB Nathaniel B. Palmer NBP1302 cruise in the Ross Sea during 2013 (TRACERS project)

Website: <https://www.bco-dmo.org/dataset/549090>

Version: 04 February 2015

Version Date: 2015-02-04

Project

» [TRacing the fate of Algal Carbon Export in the Ross Sea](#) (TRACERS)

Contributors	Affiliation	Role
Hansell, Dennis	University of Miami Rosenstiel School of Marine and Atmospheric Science (UM-RSMAS)	Principal Investigator
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Dataset Description

Cruise track generated from MGDS:Nav files
Cruise Id, Date/Time UTC, Lat, Lon, SOG, COG
1 minute fixes

Methods & Sampling

Processed ship-based Navigation Data (version 2) from the Southern Ocean acquired during the Nathaniel B. Palmer expedition NBP1302 (2013)

This data set was acquired with a ship-based Navigation system during Nathaniel B. Palmer expedition NBP1302 conducted in 2013 (Chief Scientist: Dr. Dennis Hansell). These data files are of ASCII format and include Primary Navigation data and were processed after data collection. Data were acquired as part of the project(s): TRACERS.

[Nathaniel B. Palmer Systems and Specifications](#)

Data Processing Description

Processed ship-based Navigation Data (version 2) from the Southern Ocean acquired during the Nathaniel B. Palmer expedition NBP1302 (2013)

This data set was acquired with a ship-based Navigation system during Nathaniel B. Palmer expedition NBP1302 conducted in 2013 (Chief Scientist: Dr. Dennis Hansell). These data files are of ASCII format and include Primary Navigation data and were processed after data collection. Data were acquired as part of the project(s): TRACERS.

Quality 2 - The data have been processed/modified to a level beyond that of basic quality control (e.g. final processed sonar data, photo-mosaics).

BCO-DMO Processing Notes

- Generated from NBP1302 Primary Navigation data (quality version 2) downloaded 4 February 2015 from the Marine GeoScience Data System (MGDS)
- Awk routine generated to reformat original files into BCO-DMO servable file format
- Awk routine: "MGDS_Nav_2_CruiseTrack.awk"
- Parameter names generated to conform to BCO-DMO naming convention found at [Choosing Parameter Name](#)
- Date/Time reformatted to ISO DateTime format
- Cruise Id added to data
- SOG and COG values not reported in original files
- SOG and COG (both set to 0.0) added to each data record for compatibility with other BCO-DMO cruise track datasets

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Data Files

File
CruiseTrack.csv (Comma Separated Values (.csv), 4.40 MB) MD5:a07421c95a2361963fe83c7444f57eb0
Primary data file for dataset ID 549090

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Parameters

Parameter	Description	Units
CruiseId	Official UNOLS cruise id	text
ISO_DateTime_UTC	ISO formatted UTC Date and Time	YYYY-MM-DDTHH:MM:SSZ
Latitude	Latitude Position (South is negative)	decimal degrees
Longitude	Longitude Position (West is negative)	decimal degrees
SOG	Instantaneous Speed-over-ground	meters/sec
COG	Instantaneous Course-over-ground [deg. clockwise from North]	decimal degrees

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Instruments

Dataset-specific Instrument Name	Trimble GPS - PCODE
Generic Instrument Name	Global Positioning System Receiver
Dataset-specific Description	This data set was acquired with a ship-based Navigation system
Generic Instrument Description	The Global Positioning System (GPS) is a U.S. space-based radionavigation system that provides reliable positioning, navigation, and timing services to civilian users on a continuous worldwide basis. The U.S. Air Force develops, maintains, and operates the space and control segments of the NAVSTAR GPS transmitter system. Ships use a variety of receivers (e.g. Trimble and Ashtech) to interpret the GPS signal and determine accurate latitude and longitude.

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Deployments

NBP1302

Website	https://www.bco-dmo.org/deployment/547873
Platform	RVIB Nathaniel B. Palmer
Report	http://dmoserv3.whoi.edu/data_docs/TRACERS/NBP1302_data_report.pdf
Start Date	2013-02-12
End Date	2013-04-05
Description	Ross Sea, Antarctica (53 days) RVIB Nathaniel B. Palmer : February-April 2013 McMurdo Station, Antarctica - Punta Arenas, Chile Project Title: "TRacing the fate of Algal Carbon Export in the Ross Sea" (TRACERS) Chief Scientist: Dennis Hansell, UM-RSMAS Project Description: The research focus of this cruise was to investigate the biogeochemistry associated after a phytoplankton bloom at the end of the Antarctic Austral Summer. I helped analyze and coordinate analyses of nutrients (silicic acid, phosphate, and nitrate) and collect samples for dissolved organic carbon (DOC). Note R2R Link takes user to Marine Geoscience Data System (MGDS):NBP1302 Nathaniel B. Palmer Systems and Specifications

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Project Information

TRacing the fate of Algal Carbon Export in the Ross Sea (TRACERS)

Coverage: Ross Sea

Sinking particles are a major element of the biological pump and they are commonly assigned to two fates: mineralization in the water column and accumulation at the seafloor. However, there is another fate of export hidden within the vertical decline of carbon, the transformation of sinking organic matter to fine suspended and/or dissolved organic fractions. This process has been suggested but has rarely been observed or quantified. As a result, it is presumed that the solubilized fraction is largely mineralized over short time scales. However, global ocean surveys of dissolved organic carbon are demonstrating a significant water column accumulation of organic matter under high productivity environments. This proposal will investigate the transformation of organic particles from sinking to solubilized phases of the export flux in the Ross Sea. The Ross Sea experiences high export particle production, low dissolved organic carbon export with overturning

circulation, and the area has a predictable succession of production and export events. In addition, the basin is shallow (< 1000 m) so the products the PIs will target are relatively concentrated. To address the proposed hypothesis, the PIs will use both well-established and novel biochemical and optical measures of export production and its fate. The outcomes of this work will help researchers close the carbon budget in the Ross Sea.

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Funding

Funding Source	Award
NSF Division of Polar Programs (NSF PLR)	PLR-1142117

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