Cruise tracks from R/V Blue Heron cruises BH09-05, BH09-12, BH10-03, BH10-14 on Lake Superior; 2009-2010 (Lake Superior Radiocarbon project)

Website: https://www.bco-dmo.org/dataset/3503
Version: 05 April 2013
Version Date: 2013-04-05

Project
» How important is quote old unquote Carbon in Lake Superior. A Radiocarbon Investigation (Lake Superior Radiocarbon)

Contributors	Affiliation	Role
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Dataset Description

Cruise tracks generated from R/V Blue Heron daily files and R2R Archive Files
Date, Time, Lat, Lon
1 minute fixes

Methods & Sampling

Generated by BCO-DMO staff from R/V Blue Heron daily files contributed by Elizabeth Minor and R2R Archive Files

Data Processing Description

Generated by BCO-DMO staff from R/V Blue Heron daily files contributed by Elizabeth Minor and R2R Archive Files

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Data Files

File
CruiseTracks.csv (Comma Separated Values (.csv), 2.07 MB) MD5:5e76402bbd739108f7cc8a2cd9fefa32 Primary data file for dataset ID 3503

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Parameters

Parameter	Description	Units
date	date (GMT)	YYYYMMDD
time	time (GMT)	HHMMSS
lon	Station longitude (West is negative)	decimal degrees
lat	Station latitude (South is negative)	decimal degrees
cruise_id	cruise_id	text

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Instruments

Dataset-specific Instrument Name	Global Positioning System Receiver
Generic Instrument Name	Global Positioning System Receiver
Dataset-specific Description	Navigation equipment available aboard the R/V Blue Heron a. Northstar 800 LORAN b. Two Furuno MFD8 GPS c. Furuno NavNet 3D radar, 12kw transmitter d. Furuno NavNet 3D radar 6kw transmitter e. Robertson AP45 Autopilot f. Furuno SC110 Satellite Compass g. TSS POS-MV Motion Referencing Unit h. AIS system and Furuno GPS
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

BH09-05

Website	https://www.bco-dmo.org/deployment/58713
Platform	R/V Blue Heron
Start Date	2009-06-12
End Date	2009-06-21

BH09-12

Website	https://www.bco-dmo.org/deployment/58714
Platform	R/V Blue Heron
Start Date	2009-08-14
End Date	2009-08-24

BH10-03

Website	https://www.bco-dmo.org/deployment/58719
Platform	R/V Blue Heron
Start Date	2010-05-28
End Date	2010-06-03
Description	Cruise pictures and info (for a general audience)Original data are available from the NSF R2R data catalog

BH10-14

Website	https://www.bco-dmo.org/deployment/59025
Platform	R/V Blue Heron
Start Date	2010-08-25
End Date	2010-09-01
Description	Original data are available from the NSF R2R data catalog

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Project Information

How important is quote old unquote Carbon in Lake Superior. A Radiocarbon Investigation (Lake Superior Radiocarbon)

Coverage: Lake Superior

Organic carbon present in aquatic ecosystems has the potential to either be sequestered by sedimentary organic matter or recycled and contributed to the atmosphere through microbial respiration. Ultimately, the fate of organic matter is dependant upon its source, as well as the physical transport mechanisms and biogeochemical transformations it is exposed to in the water column. Because these processes vary significantly within aquatic systems, such as the ocean, it is difficult to assess the biogeochemical importance of organic carbon; however, it is a problem of critical importance whose results could be utilized to resolve key issues in global biogeochemical carbon cycles and to determine the net heterotrophy of most aquatic environments.

Scientists from the University of Minnesota-Duluth and Virginia Commonwealth University would address this problem by studying organic carbon dynamics in Lake Superior because its biogeochemistry is similar to that of the world ocean. Using Lake Superior as a natural laboratory, the researchers plan to carry out radiocarbon measurements of particulate organic carbon (POC), dissolved organic carbon (DOC), dissolved inorganic carbon (DIC), and bacterially-respired CO2, as well as obtain the chemical composition of DOC and POC during stratified and non-stratified periods. Results would be used to identify the sources of carbon in the lake and determined transformations of carbon between POC, DOC, DIC, and bacterially-respired CO2.

Educational impacts include workshops and presentation for K-12 audiences as well as research and training opportunities for graduate and undergraduate students in Water Resources Science and Biochemistry classes.

Cruise pictures and info (for a general audience)

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Funding

Funding Source	Award
NSF Division of Ocean Sciences (NSF OCE)	OCE-0825600

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