BIOMAPERII environmental data from the acoustics data stream from RVIB Nathaniel B. Palmer cruises NBP0103, NBP0104, NBP0202, and NBP0204 in the Southern Ocean from 2001-2002 (SOGLOBEC project)

Website: https://www.bco-dmo.org/dataset/2354
Data Type: Cruise Results
Version: 1
Version Date: 2003-05-13

Project
» U.S. GLOBEC Southern Ocean (SOGLOBEC)
» GLOBEC: Winter Distribution and Success of Southern Ocean Krill (Southern Ocean Krill)

Programs
» U.S. GLOBal ocean ECosystems dynamics (U.S. GLOBEC)
» U.S. GLOBal ocean ECosystems dynamics (U.S. GLOBEC)

Contributors	Affiliation	Role
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Abstract
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Coverage

Temporal Extent: 2001-04-29 - 2002-09-12

Dataset Description

Environmental Data Stream (CTD Plus)
A Component of the BIOMAPERII Data Acquisition System

These data are from the Environmental Sensing System (ESS) a component of the BIO -Optical Multi-frequency Acoustical and Physical Environmental Recorder (BIOMAPER II)[1] data acquisition system.

BIOMAPERII is a towed package consisting of a number of independent observational components: a multi-frequency sonar (Acoustics) system, a video plankton recorder (VPR) system, and an environmental sensor system (ESS). The incoming ESS environmental data is split into two data streams, one to be merged with the VPR data and one to be merged with the acoustics data. The reason being that there are times when either the Acoustic or VPR system may be turned off. Thus, there is a independent ESS data set to support either the

Acoustic or VPR data streams.

The ESS data reported here are in support of the Acoustics data stream. See the data object "sv120data", 120 kHz acoustic backscatter data set.

References

[1]Wiebe, P.H., et al., 2002, BIOMAPER-II: An Integrated Instrument Platform for Coupled Biological and Physical Measurements in Coastal and Oceanic Regimes. IEEE Journal of Oceanic Engineering, **27(3)**:700-716.

[2]Fofonoff and Millard, 1983, UNESCO technical papers in Marine Sciences, #44.

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Methods & Sampling

These data are from the Environmental Sensing System (ESS) a component of the BIO -Optical Multi-frequency Acoustical and Physical Environmental Recorder (BIOMAPER II)1 data acquisition system.

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Data Files

File
BMP2_ess.csv (Comma Separated Values (.csv), 144.28 MB) MD5:2fcb2e7387f5c287d4328b4ee61c5560 Primary data file for dataset ID 2354

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Parameters

Parameter	Description	Units
cruiseid	cruise identification, e.g. NBP0204, for Nathaniel B. Palmer cruise 0204	
year	year, local time, e.g. 2004	
brief_desc	brief cruise description, such as broad-scale, process, mooring, etc.	

tow	tow number	
day_local	day, local time (01-31)	
month_local	month, local time (1-12)	
station	station number, from event log	
station_std	standard station number, from event log	
yrday_local	local day and decimal time	YYY.Y
time_local	local time using 24 hour clock and fractions of the minute.	HHmm.m
press	depth of sample/data point, given as pressure	decibars
temp	temperature of water	degrees C.
potemp	potential temperature, theta[2]	degrees C
sal	salinity, PSS-78	dimensionless
sigma_0	potential density, sigma-theta[2]	kg/m&sup3
flvolt	fluorescence (0-5 volts)	volts
angle	angle of tow body relative to vertical (0-89 degrees)	
vtvel	vertical tow velocity, meters/minute	m/min
beam_c	beam attenuation coefficient	/meter⁻¹
lat	latitude, negative = South	degrees
lon	longitude, negative = West	degrees

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Instruments

Dataset-specific Instrument Name	BIo-Optical Multi-frequency Acoustical and Physical Environmental Recorder II
Generic Instrument Name	BIo-Optical Multi-frequency Acoustical and Physical Environmental Recorder II
Dataset-specific Description	BIOMAPERII is a towed package consisting of a number of independent observational components
Generic Instrument Description	BIOMAPER II is a set of sensors on a long aluminum frame that resembles the tail of a World War II airplane. A research vessel tows the instrument through the water on a specialized tow cable that sends power to the sensors and brings data back to the ship. People use BIOMAPER II to learn about phytoplankton and zooplankton over areas that are too large to study with the traditional net-and-microscope method. Whereas nets can sample areas up to about 5 meters (16 feet) on a side, BIOMAPER II can record data from 500 meters (1,640 feet) or more of the water column at a time. The instrument's standard suite of sensors were chosen for studying plankton: a five-frequency sonar system, a video plankton recorder and an environmental sensor system (ESS, like the one on MOCNESS). The ESS measures water temperature, salinity, oxygen, chlorophyll and light levels. BIOMAPER II also has room for attaching other instruments for specific uses. The instrument's official name is BIOMAPER-II: the BIo-Optical Multi-frequency Acoustical and Physical Environmental Recorder. The Roman numeral II indicates that it's a redesign of the original BIOMAPER, a prototype that was invented and tested in the mid 1990s. (more information).

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Deployments

NBP0103

Website	https://www.bco-dmo.org/deployment/57636
Platform	RVIB Nathaniel B. Palmer
Report	http://globec.whoi.edu/so-dir/reports/nbp0103/nbp0103.html
Start Date	2001-04-24
End Date	2001-06-05
Description	**Methods & Sampling** These data are from the Environmental Sensing System (ESS) a component of the BIO -Optical Multi-frequency Acoustical and Physical Environmental Recorder (BIOMAPER II)1 data acquisition system.

NBP0104

Website	https://www.bco-dmo.org/deployment/57638
Platform	RVIB Nathaniel B. Palmer
Report	http://www.ccpo.odu.edu/Research/globec/cruises01/nbp0104_menu.html
Start Date	2001-07-22
End Date	2001-08-31
Description	**Methods & Sampling** These data are from the Environmental Sensing System (ESS) a component of the BIO -Optical Multi-frequency Acoustical and Physical Environmental Recorder (BIOMAPER II)1 data acquisition system.

NBP0202

Website	https://www.bco-dmo.org/deployment/57641
Platform	RVIB Nathaniel B. Palmer
Report	http://globec.whoi.edu/so-dir/reports/nbp0202/nbp0202b.html
Start Date	2002-04-09
End Date	2002-05-21
Description	**Methods & Sampling** These data are from the Environmental Sensing System (ESS) a component of the BIO -Optical Multi-frequency Acoustical and Physical Environmental Recorder (BIOMAPER II)1 data acquisition system.

NBP0204

Website	https://www.bco-dmo.org/deployment/57643
Platform	RVIB Nathaniel B. Palmer
Report	http://globec.whoi.edu/so-dir/reports/nbp0204/nbp0204b.html
Start Date	2002-07-31
End Date	2002-09-18
Description	Also see NBP0204 Cruise Data Report **Methods & Sampling** These data are from the Environmental Sensing System (ESS) a component of the BIO -Optical Multi-frequency Acoustical and Physical Environmental Recorder (BIOMAPER II)1 data acquisition system.

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Project Information

U.S. GLOBEC Southern Ocean (SOGLOBEC)

Website: http://www.ccpo.odu.edu/Research/globec_menu.html

Coverage: Southern Ocean

The fundamental objectives of United States Global Ocean Ecosystems Dynamics (U.S. GLOBEC) Program are

dependent upon the cooperation of scientists from several disciplines. Physicists, biologists, and chemists must make use of data collected during U.S. GLOBEC field programs to further our understanding of the interplay of physics, biology, and chemistry. Our objectives require quantitative analysis of interdisciplinary data sets and, therefore, data must be exchanged between researchers. To extract the full scientific value, data must be made available to the scientific community on a timely basis.

GLOBEC: Winter Distribution and Success of Southern Ocean Krill (Southern Ocean Krill)

Coverage: Southern Ocean

The U.S. Global Ocean Ecosystems Dynamics (U.S. GLOBEC) program has the goal of understanding and ultimately predicting how populations of marine animal species respond to natural and anthropogenic changes in climate. Research in the Southern Ocean (SO) indicates strong coupling between climatic processes and ecosystem dynamics via the annual formation and destruction of sea ice. The Southern Ocean GLOBEC Program (SO GLOBEC) will investigate the dynamic relationship between physical processes and ecosystem responses through identification of critical parameters that affect the distribution, abundance and population dynamics of target species. The overall goals of the SO GLOBEC program are to elucidate shelf circulation processes and their effect on sea ice formation and krill distribution, and to examine the factors which govern krill survivorship and availability to higher trophic levels, including penguins, seals and whales. The focus of the U.S. contribution to the international SO GLOBEC program will be on winter processes. This component will focus on juvenile and adult krill and mesozooplankton prey distribution and abundance using a sophisticated instrument package, BIOMAPPER II, which is equipped with an acoustic backscatter sonar system, a video plankton recorder and an environmental sensor system. The system is used in large-scale studies. Additionally, a remotely-operative vehicle will be used to map the distribution and behavior of krill under ice. The result of the integrated SO GLOBEC program will be to improve the predictability of living marine resources, especially with respect to local and global climatic shifts.

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Program Information

U.S. GLOBal ocean ECosystems dynamics (U.S. GLOBEC)

Website: http://www.usglobec.org/

Coverage: Global

U.S. GLOBEC (GLOBal ocean ECosystems dynamics) is a research program organized by oceanographers and fisheries scientists to address the question of how global climate change may affect the abundance and production of animals in the sea.

The U.S. GLOBEC Program currently had major research efforts underway in the Georges Bank / Northwest Atlantic Region, and the Northeast Pacific (with components in the California Current and in the Coastal Gulf of Alaska). U.S. GLOBEC was a major contributor to International GLOBEC efforts in the Southern Ocean and Western Antarctic Peninsula (WAP).

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Funding

Funding Source	Award
NSF Antarctic Sciences (NSF ANT)	ANT-9910307

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