

120 kHz acoustic backscatter in relative decibels from RVIB Nathaniel B. Palmer cruises NBP0103 and NBP0103 in the Southern Ocean in 2001 (SOGLOBEC project; Southern Ocean Krill project)

Website: <https://www.bco-dmo.org/dataset/2385>

Data Type: Cruise Results

Version: final

Version Date: 2001-12-03

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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Dataset Description

These relative decibel values are the result of processing the NBP0104 and NBP0103 volume backscatter data from BIOMAPER-II at 120KHz. They are relative decibel values derived from the backscatter data (in volts) and normalized according to the algorithms in the Matlab routine docurtainnf.m. The algorithm includes the following steps:

1. Add 10^{-10} to each value
2. Multiply result by 10^{10} to get values with units of m^2/m^3 (called sv)
3. Take the log (called SV)

These are energy backscattering values.

The values are presented as twenty groups of 20 numbers in each group. Each number is displayed as NNN, where there is an assumed decimal point at NN.N and all values should be negated. That is NNN, is really - NN.N.

See the related objects [sv120coords_0104](#) and [sv120depths_0104](#) for NBP0104 and [sv120amcoords_0103](#), [sv120pmcoords_0103](#) and [sv120depths_0103](#) for NBP0103.

Methods & Sampling

These relative decibel values are the result of processing the NBP0104 and NBP0103 volume backscatter data from BIOMAPER-II at 120KHz. They are relative decibel values derived from the backscatter data (in volts) and normalized according to the algorithms in the Matlab routine docurtainnf.m. The algorithm includes the following steps:

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Data Processing Description

See the related objects [sv120amcoords_0103](#), [sv120pmcoords_0103](#) and [sv120depths_0103](#) for NBP0103.

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Data Files

File	
RVIB NBP0103 Morning Position Data filename: sv120amcoords_0103.tsv The Time and Position data associated with the Volume Backscattering data from NBP0103 collected in the morning.	(Tab Separated Values (.tsv), 101.90 KB) MD5:03f9ad797b598aa03df0bcfb3270f4d0
RVIB NBP0104 Position Data filename: sv120coords_0104.tsv Time and Position data associated with the Volume Backscattering data from NBP0104.	(Tab Separated Values (.tsv), 1.54 MB) MD5:a40070ff404599e18e8583fa66bf936e
sv120data.csv Primary data file for dataset ID 2385	(Comma Separated Values (.csv), 63.76 MB) MD5:fb74be443863d5fa04f55641ac1414fe9
RVIB NBP0103 Depth Data filename: sv120depths_0103.tsv Depths associated with the NBP0103 sv120 data. These depths are the same for both the morning and afternoon data.	(Tab Separated Values (.tsv), 5.47 KB) MD5:e000ff5699bc2ab8cb1b5509515bce4c
RVIB NBP0104 Depth Data filename: sv120depths_0104.tsv Depths associated with the NBP0104 sv120 data.	(Tab Separated Values (.tsv), 5.47 KB) MD5:e000ff5699bc2ab8cb1b5509515bce4c
RVIB NBP0103 Afternoon Position Data filename: sv120pmcoords_0103.tsv The Time and Position data associated with the Volume Backscattering data from NBP0103 collected in the afternoon.	(Tab Separated Values (.tsv), 64.21 KB) MD5:705b21add493c156a746603c97a26e97

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Parameters

Parameter	Description	Units
cruiseid	cruise identifier	
year	year, e.g. 2001.	
platform	ship, mooring, fixed location name	
timezone	per US GLOBEC, number of hours added to local time to convert to GMT	
decibel_returns_1	energy backscatter values group 1 of 20, -NN.N represented as NNN	relative decibels
decibel_returns_2	energy backscatter values group 2 of 20, -NN.N represented as NNN	relative decibels
decibel_returns_3	energy backscatter values group 3 of 20, -NN.N represented as NNN	relative decibels
decibel_returns_4	energy backscatter values group 4 of 20, -NN.N represented as NNN	relative decibels

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Instruments

Dataset-specific Instrument Name	Blo-Optical Multi-frequency Acoustical and Physical Environmental Recorder II
Generic Instrument Name	Blo-Optical Multi-frequency Acoustical and Physical Environmental Recorder II
Dataset-specific Description	These relative decibel values are the result of processing the NBP0104 and NBP0103 volume backscatter data from BIOMAPER-II at 120KHz.
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 Blo-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).

Deployments

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	<p>Methods & Sampling</p> <p>These relative decibel values are the result of processing the NBP0104 and NBP0103 volume backscatter data from BIOMAPER-II at 120KHz. They are relative decibel values derived from the backscatter data (in volts) and normalized according to the algorithms in the Matlab routine docurtainnf.m. The algorithm includes the following steps: Add 10-10 to each value Multiply result by by 1010 to get values with units of m2/m3 (called sv) Take the log (called SV) These are energy backscattering values. The values are presented as twenty groups of 20 numbers in each group. Each number is displayed as NNN, where there is an assumed decimal point at NN.N and all values should be negated. That is NNN, is really -NN.N.</p> <p>Processing Description</p> <p>http://globec.whoi.edu/jg/info/globec/soglobec/broadscale/2001/sv120coord... sv120coords_0104 and http://globec.whoi.edu/jg/info/globec/soglobec/broadscale/2001/sv120dept... sv120depths_0104 for NBP0104</p>

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	<p>Methods & Sampling</p> <p>These relative decibel values are the result of processing the NBP0104 and NBP0103 volume backscatter data from BIOMAPER-II at 120KHz. They are relative decibel values derived from the backscatter data (in volts) and normalized according to the algorithms in the Matlab routine docurtainnf.m. The algorithm includes the following steps: 1. Add 10-10 to each value 2. Multiply result by by 1010 to get values with units of m2/m3 (called sv) 3. Take the log (called SV) These are energy backscattering values. The values are presented as twenty groups of 20 numbers in each group. Each number is displayed as NNN, where there is an assumed decimal point at NN.N and all values should be negated. That is NNN, is really -NN.N.</p> <p>Processing Description</p> <p>See the related objects sv120amcoords_0103, sv120pmcoords_0103 and sv120depths_0103 for NBP0103.</p>

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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