Acoustic backscatter data in relative decibels (one of three related datasets) from the AL9801 cruise on the R/V Albatross IV in the Gulf of Maine and Georges Bank in 1998 (GB project)

Website: https://www.bco-dmo.org/dataset/2392
Data Type: Cruise Results
Version: 1
Version Date: 2001-11-01

Project
» U.S. GLOBEC Georges Bank (GB)

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

Contributors	Affiliation	Role
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Abstract
Acoustic backscatter data in relative decibels (one of three related datasets) from the AL9801 cruise on the R/V Albatross IV in the Gulf of Maine and Georges Bank in 1998 (GLOBEC-Georges Bank project)

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Coverage

Spatial Extent: **N**:42.4 **E**:-65.85 **S**:40.3 **W**:-69.04
Temporal Extent: 1998-01-07 - 1998-01-19

Dataset Description

These relative decibel values are the result of processing the AL9801 Greene Bomber volume backscatter 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 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 related objects:

cp_depths: https://www.bco-dmo.org/dataset/2393
cp_lat_lon: https://www.bco-dmo.org/dataset/2394

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Data Files

File
cp_decibels.csv (Comma Separated Values (.csv), 19.56 MB) MD5:0cd7a845d0e82180f8f4f83f37a6e25e Primary data file for dataset ID 2392

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Parameters

Parameter	Description	Units
decibel_returns_1	relative decibel values	volts
decibel_returns_2	relative decibel values	volts
decibel_returns_3	relative decibel values	volts
decibel_returns_4	relative decibel values	volts
decibel_returns_5	relative decibel values	volts
decibel_returns_6	relative decibel values	volts
decibel_returns_7	relative decibel values	volts
decibel_returns_8	relative decibel values	volts
decibel_returns_9	relative decibel values	volts
decibel_returns_10	relative decibel values	volts
decibel_returns_11	relative decibel values	volts
decibel_returns_12	relative decibel values	volts
decibel_returns_13	relative decibel values	volts

decibel_returns_14	relative decibel values	volts
decibel_returns_15	relative decibel values	volts
decibel_returns_16	relative decibel values	volts
decibel_returns_17	relative decibel values	volts
decibel_returns_18	relative decibel values	volts
decibel_returns_19	relative decibel values	volts
decibel_returns_20	relative decibel values	volts

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Instruments

Dataset-specific Instrument Name	
Generic Instrument Name	Greene Bomber
Generic Instrument Description	The Greene Bomber is a ENDECO V-fin towed body with overall dimensions of length: 139.7 cm; width at front: 66 cm; width at rear: 142.2 cm; height: 48.26 cm. It is constructed primarily of fiberglass. Since the early 1990's it has been towed just below the sea surface with acoustic and environmental sensors to provide continuous profiles of the water column acoustic backscattering and target strengths from zooplankton with a size range of ~ 1.5 mm to 100 mm, and sea surface environmental properties (temperature, salinity, and fluorescence). It was first used with a BioSonics dual-beam acoustic system operating at 420 kHz and 1 MHz or 120 and 420 kHz. The environmental sensing system (ESS) was the ESS used on MOCNESS. In 1997 the acoustics were changed to a HTI acousitic system with 120 and 420 kHz transducers. In 2010, two additional HTI transducers (43 and 200 kHz) were added. For additional detail see: Wiebe, P. and C. Greene. 1994. The use of high frequency acoustics in the study of zooplankton spatial and temporal patterns. Proc. NIPR Symp. Polar Biol. 7: 133-157. Wiebe, P.H., D. Mountain, T.K. Stanton, C. Greene, G. Lough, S. Kaartvedt, J. Dawson, and N. Copley. 1996. Acoustical study of the spatial distribution of plankton on Georges Bank and the relation of volume backscattering strength to the taxonomic composition of the plankton. Deep-Sea Research II. 43: 1971-2001. Wiebe, PH; Stanton, T K; Benfield, M C; Mountain, D G; Greene, CH. 1997. High-frequency acoustic volume backscattering in the Georges Bank coastal region and its interpretation using scattering models. IEEE Journal of Oceanic Engineering22(3): 445-464.

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Deployments

AL9801

Website	https://www.bco-dmo.org/deployment/57382
Platform	R/V Albatross IV
Report	http://globec.whoi.edu/globec-dir/reports/al9801/al9801.html
Start Date	1998-01-07
End Date	1998-01-19
Description	broad-scale

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Project Information

U.S. GLOBEC Georges Bank (GB)

Website: http://globec.whoi.edu/globec_program.html

Coverage: Georges Bank, Gulf of Maine, Northwest Atlantic Ocean

The U.S. GLOBEC Georges Bank Program is a large multi- disciplinary multi-year oceanographic effort. The proximate goal is to understand the population dynamics of key species on the Bank - Cod, Haddock, and two species of zooplankton (*Calanus finmarchicus* and *Pseudocalanus*) - in terms of their coupling to the physical environment and in terms of their predators and prey. The ultimate goal is to be able to predict changes in the distribution and abundance of these species as a result of changes in their physical and biotic environment as well as to anticipate how their populations might respond to climate change.

The effort is substantial, requiring broad-scale surveys of the entire Bank, and process studies which focus both on the links between the target species and their physical environment, and the determination of fundamental aspects of these species' life history (birth rates, growth rates, death rates, etc).

Equally important are the modelling efforts that are ongoing which seek to provide realistic predictions of the flow field and which utilize the life history information to produce an integrated view of the dynamics of the populations.

The U.S. GLOBEC Georges Bank Executive Committee (EXCO) provides program leadership and effective communication with the funding agencies.

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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
National Science Foundation (NSF)	unknown GB NSF
National Oceanic and Atmospheric Administration (NOAA)	unknown GB NOAA

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