Mesozooplankton from R/V Kaiyo-Maru cruise KY0103-02 in the Northwestern Sub-Arctic Pacific in 2001 (SEEDS I project)

Website: https://www.bco-dmo.org/dataset/2912
Version: 28August2008
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Project
» Subarctic-Pacific Iron Experiment for Ecosystem Dynamics Study I (SEEDS I)

Program
» Iron Synthesis (FeSynth)

Contributors	Affiliation	Role
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Dataset Description

SEEDS 2001 Mesozooplankton
Abundance of zooplankters for most stations IN and OUT (all except day 13).
Results are given as individuals per m2 by species and copepodite stage.

Methods & Sampling

Samples were collected with VMPS (Vertical Multi-layer Plankton Sampler)
with a 50x50cm mouth opening and 100um mesh
Samples were collected between 0-20, 20-50, 50-100 and 100-200m.

Samples were immediately fixed with 10% buffered formalin.
Listed zooplankters were identified counted and sorted out from the sample.
Species and copepodite stage are given

Data Processing Description

BCO-DMO Processing Notes
CSV file generated by Doug Mackie from original spreadsheet Mesozooplankton.xls

Notes from CSV file generated by Doug Mackie:
Species and copepodite stage are given
Wet weight of the sorted samples were measured for copepods and non-copepod organisms

Detailed descriptions of the method are presented by Tsuda et al. (2005) in the special volume of Progress in Oceanography
Tsuda A. Saito H. Nishioka J. & Ono T. (2005): Mesozooplankton responses to iron-fertilization in the western subarctic Pacific (SEEDS2001). Progress In Oceanography 64(2-4) 237-251

Data of D13 were considered to be not quantitative because of rough weather.
0 value is as reported in original file
nd value means no sample or dash reported in original file

BCO-DMO Edits
- Parameter names modified to conform to BCO-DMO convention

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Data Files

File
mesozoo.csv (Comma Separated Values (.csv), 13.62 KB) MD5:5cdef9baee1a6a56abfd4c10a3c81623 Primary data file for dataset ID 2912

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Parameters

Parameter	Description	Units
date	Date UTC	YYYYMMDD
lat	latitude, negative denotes South	decimal degrees
lon	longitude, negative denotes West	decimal degrees
station	Station Id	text
time_start	Start time of station	HHMM
time_end	End time of station	HHMM
depth_top	Top sampling depth	meters
depth_bottom	Bottom depth of sample	meters
wet_weight_copepod	Wet weight copepod	g/m2
wet_weight_noncopepod	Wet weight noncopepod	g/m2

Neocalanus_cristatus_5	Count of Neocalanus_cristatus_5	count
Neocalanus_cristatus_4	Count of Neocalanus_cristatus_4	count
Neocalanus_cristatus_3	Count of Neocalanus_cristatus_3	count
Neocalanus_cristatus_2	Count of Neocalanus_cristatus_2	count
Neocalanus_cristatus_1	Count of Neocalanus_cristatus_1	count
N_plumchrus_5	Count of N_plumchrus_5	count
N_plumchrus_4	Count of N_plumchrus_4	count
N_plumchrus_3	Count of N_plumchrus_3	count
N_plumchrus_2	Count of N_plumchrus_2	count
N_plumchrus_1	Count of N_plumchrus_1	count
N_flemingeri_6f	Count of N_flemingeri_6f	count
N_flemingeri_6m	Count of N_flemingeri_6m	count
N_flemingeri_5	Count of N_flemingeri_5	count
N_flemingeri_4	Count of N_flemingeri_4	count
Eucalanus_bungii_6f	Count of Eucalanus_bungii_6f	count
Eucalanus_bungii_6m	Count of Eucalanus_bungii_6m	count
Eucalanus_bungii_5	Count of Eucalanus_bungii_5	count
Eucalanus_bungii_4	Count of Eucalanus_bungii_4	count
Eucalanus_bungii_3	Count of Eucalanus_bungii_3	count

Eucalanus_bungii_2	Count of Eucalanus_bungii_2	count
Eucalanus_bungii_1	Count of Eucalanus_bungii_1	count
Metridia_pacifica_6f	Count of Metridia_pacifica_6f	count
Pleuromamma_6f	Count of Pleuromamma_6f	count
Pleuromamma_6f	Count of Pleuromamma_6f	count
Euchaeta	Count of Euchaeta	count
Chaetgnaths	Count of Chaetgnaths	count
Themisto	Count of Themisto	count
Amphipods	Count of Amphipods	count
Euphausia	Count of Euphausia	count
Ostracoda	Count of Ostracoda	count
Ctenophora	Count of Ctenophora	count
Aglantha	Count of Aglantha	count

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Instruments

Dataset-specific Instrument Name	Vertical Multi-layer Plankton Sampler
Generic Instrument Name	Vertical Multi-layer Plankton Sampler
Generic Instrument Description	The Vertical Multiple Plankton Sampler (VMPS), a variation of the multiple plankton sampler (MPS), is a specially designed opening-closing, multi-layer net system used for collecting zooplankton (Terazaki and Tomatsu, 1997). The mesh size and mouth opening can vary depending on research focus. The VMPS is towed through depth ranges with nets closed at known intervals to yield estimations of standing stock, vertical distribution and diel vertical migration. The VMPS as described by Wiebe and Benfield (2003) is named the Ocean Research Institute Vertical Multiple Plankton Sampler (ORI-VMPS) with specifications: 100 cm x 100 cm rectangular mouth opening multiple net system that can be equipped with 4 to 10 nets, 510 cm long with 0.33 mm nylon mesh. Nets are opened/closed by surface commands down transmitted via conduction cable to an underwater unit (see Plate 31 C (Wiebe and Benfield, 2003)). References: Terazaki, M. and Tomatsu, C. (1997). A vertical multiple opening and closing plankton sampler. Journal of Advanced Marine Science Technological Society, 3, 127-132. Wiebe, Peter H. and Mark C. Benfield, 2003. From the Hensen net toward four-dimensional biological oceanography. Progress in Oceanography, 56, pp. 118.

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Deployments

KY0103-02

Website	https://www.bco-dmo.org/deployment/57835
Platform	R/V Kaiyo-Maru
Start Date	2001-07-13
End Date	2001-08-06
Description	Patch enrichment = Leg 2: 13 Jul 2001 (Kushiro)--06 Aug 2001 (Tokyo)Note: No cruise track was contributed for this deployment. Data are plotted outside what is displayed as the "best availble" cruise track from the data contributed

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Project Information

Subarctic-Pacific Iron Experiment for Ecosystem Dynamics Study I (SEEDS I)

Website: http://www.seeds-exp.jp/en/index.html

Coverage: Western subarctic gyre in the North Pacific at 48.5°N, 165°E

An in situ test of the iron limitation hypothesis in the subarctic North Pacific Oceanwas performed. First experiment of two (see SEEDS 2004)

A single enrichment of dissolved iron caused a large increase in phytoplanktonstanding stock and decreases in macronutrients and dissolved carbon dioxide. The dominant phytoplankton species shifted after the iron addition from pennate diatoms to a centric diatom, *Chaetoceros debilis*, that showed a very high growth rate, 2.6 doublings per day. Conclusion was that the bioavailability of iron regulates the magnitude of the

phytoplankton biomass and the key phytoplankton species that determine the biogeochemical sensitivity to iron supply of high-nitrate, low-chlorophyll waters.

Data was collected at a total of 13 stations and from 3 moored sediment traps.
- Stations were occupied IN patch for days 0, 2, 4, 7, 9, 11 and 13.
- Stations were occupied OUT patch for days 2, 4, 7, 9, 11, 13.

It is not explicitly stated but it appears that at all stations two CTDsampling rosette casts were made: clean and rms. The clean rosette appears to have typically sampled the mixed layer (<50 m) e.g. 5, 10, 20, 30, 50 m. The rms rosette appears to have typically sampled the euphotic zone (<200m) e.g. 10, 20, 30, 40, 50, 80, 100, 150, 200 m.

Sediment traps were deployed at:
- CENTRE: 20 m
- IN: 40, 60, 100, 200 m
- OUT: 20, 40, 60 and 100 m

Traps were recovered several times. Deployment times (days):
- CENTRE: 3.95, 2.83, 2.02, 1.98, 1.93, 2.05
- IN: 3.99, 2.84, 2.03, 2.00, 1.95, 2.01
- OUT: 5.17, 3.97, 3.42

BCO-DMO/Doug Mackie Note:
Throughout these data, stations are identified as D2-I, D2-O, etc.
D2-I indicates "Day 2, in patch station".
while D2-O indicates "Day 2, out patch station".
This applies to all station identifiers.

Related file

SEEDS 2001 Project Documentation

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Program Information

Iron Synthesis (FeSynth)

Coverage: Global

The two main objectives of the Iron Synthesis program (SCOR Working Group proposal, 2005), are:
1. Data compilation: assembling a common open-access database of the *in situ* iron experiments, beginning with the first period (1993-2002; Ironex-1, Ironex-2, SOIREE, EisenEx, SEEDS-1; SOFeX, SERIES) where primary articles have already been published, to be followed by the 2004 experiments where primary articles are now in progress (EIFEX, SEEDS-2; SAGE, FeeP); similarly for the natural fertilizations S.O.JGOFS (1992), CROZEX (2004/2005) and KEOPS (2005).

2. Modeling and data synthesis of specific aspects of two or more such experiments for various topics such as physical mixing, phytoplankton productivity, overall ecosystem functioning, iron chemistry, CO2 budgeting, nutrient uptake ratios, DMS(P) processes, and combinations of these variables and processes.

SCOR Working Group proposal, 2005. "The Legacy of *in situ* Iron Enrichments: Data Compilation and Modeling".
http://www.scor-int.org/Working_Groups/wg131.htm

See also: SCOR Proceedings Vol. 42 Concepcion, Chile October 2006, pgs: 13-16 2.3.3 Working Group on The

Legacy of *in situ* Iron Enrichments: Data Compilation and Modeling.

The first objective of the Iron Synthesis program involves a data recovery effort aimed at assembling a common, open-access database of data and metadata from a series of *in-situ* ocean iron fertilization experiments conducted between 1993 and 2005. Initially, funding for this effort is being provided by the Scientific Committee on Oceanic Research (SCOR) and the U.S. National Science Foundation (NSF).

Through the combined efforts of the principal investigators of the individual projects and the staff of Biological and Chemical Oceanography Data Management Office (BCO-DMO), data currently available primarily through individuals, disparate reports and data agencies, and in multiple formats, are being collected and prepared for addition to the BCO-DMO database from which they will be freely available to the community.

As data are contributed to the BCO-DMO office, they are organized into four overlapping categories:
1. Level 1, basic metadata
(e.g., description of project/study, general location, PI(s), participants);
2. Level 2, detailed metadata and basic shipboard data and routine ship's operations
(e.g., CTDs, underway measurements, sampling event logs);
3. Level 3, detailed metadata and data from specialized observations
(e.g., discrete observations, experimental results, rate measurements) and
4. Level 4, remaining datasets
(e.g., highest level of detailed data available from each study).

Collaboration with BCO-DMO staff began in March of 2008 and initial efforts have been directed toward basic project descriptions, levels 1 and 2 metadata and basic data, with detailed and more detailed data files being incorporated as they become available and are processed.

Related file

Program Documentation

The Iron Synthesis Program is funded jointly by the Scientific Committee on Oceanic Research (SCOR) and the U.S. National Science Foundation (NSF).

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