Chlorophyll concentrations from R/V Kaiyo-Maru cruise KY0103-01 and KY0103-02 in the Northwestern Sub-Arctic Pacific in 2001 (SEEDS I project)

Website: https://www.bco-dmo.org/dataset/2896
Version: 26August2008
Version Date: 2008-08-26

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 Chlorophyll concentrations
Size fractionated chlorophyll for all stations IN and OUT

Methods & Sampling

Duplicate samples from clean and rms rosettes.
Clean samples taken at 5, 10, 20, 30, 50, 70 m and all filtered gff only.
Rms samples taken at 5, 10, 20, 30, 40, 50, 60, 70, 80, 100, 150, 200 m and all filtered gff.
Days 0, 2, 4, 7, 9, 11, 13 also filtered to give 0.2-2 um, 2-10um and >10um.
Extraction: N,N-dimethylformamide
Measurement: Turner Designs fluorometer A-110.

Data Processing Description

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

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

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Data Files

File
Chlor.csv (Comma Separated Values (.csv), 24.36 KB) MD5:9e1fbbe6fb45f7f3c8dbc0ae9b6d4ded Primary data file for dataset ID 2896

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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	Sample depth in meters	meters
UnKnown	UnKnown Parameter	(tbd)
ChlConc_0point2_to_Xum	Chlorophyll concentration for size 0.2-Xum	mg/m3
ChlConc_2_to_10um	Chlorophyll Concentration for size 2-10um	mg/m3
ChlConc_GT_10um	Chlorophyll Concentration for size > 10um	mg/m3

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Instruments

Dataset-specific Instrument Name	Fluorometer
Generic Instrument Name	Fluorometer
Generic Instrument Description	A fluorometer or fluorimeter is a device used to measure parameters of fluorescence: its intensity and wavelength distribution of emission spectrum after excitation by a certain spectrum of light. The instrument is designed to measure the amount of stimulated electromagnetic radiation produced by pulses of electromagnetic radiation emitted into a water sample or in situ.

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Deployments

KY0103-01

Website	https://www.bco-dmo.org/deployment/57834
Platform	R/V Kaiyo-Maru
Start Date	2001-06-28
End Date	2001-07-10
Description	Pre-infusion observations = Leg 1: 28 Jun 2001 (Tokyo) to 10 Jul 2001 (Kushiro) 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

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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