

Pre-Fertilization (PF) CTD profile measurements from R/V Kaiyo-Maru cruise KY0103-01 in the Northwestern Sub-Arctic Pacific in 2001 (SEEDS I project)

Website: <https://www.bco-dmo.org/dataset/2891>

Version: 16September2008

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Project

» [Subarctic-Pacific Iron Experiment for Ecosystem Dynamics Study I](#) (SEEDS I)

Program

» [Iron Synthesis](#) (FeSynth)

Contributors	Affiliation	Role
Tsuda, Atsushi	University of Tokyo	Principal Investigator
Mackie, Doug	University of Otago	Contact
Gegg, Stephen R.	Woods Hole Oceanographic Institution (WHOI)	BCO-DMO Data Manager

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Dataset Description

SEEDS 2001 Pre Fertilization (PF) CTD profile data

Methods & Sampling

PF Station Header

PF00.HDR:* System UpLoad Time = Jul 05 2001 07:08:41

It is not explicitly stated but it appears that at all stations two CTD sampling 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 (<200 m)
e.g. 10, 20, 30, 40, 50, 80, 100, 150, 200 m.

NOTE: Temp is ITS-90 scale

Data Processing Description

BCO-DMO Processing Notes

Generated from the original CTD data

BCO-DMO Edits

- Cruise event generated as YYYYMMDDHHMM
- Parameter names modified to conform to BCO-DMO convention
- Date converted to YYYYMMDD
- Time converted to HHMM
- Lat/Lon converted from degs, decimal minutes to decimal degrees

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Data Files

File
PF_CTD.csv (Comma Separated Values (.csv), 33.71 KB) MD5:ba1f1c77176c7c6f0a202d58403acef5 Primary data file for dataset ID 2891

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Parameters

Parameter	Description	Units
lon	longitude, negative denotes West	decimal degrees
lat	latitude, negative denotes South	decimal degrees
date_start	start date of sampling	YYYYMMDD
Pr	pressure, from CTD	decibars
Sal00	salinity, from CTD, PSS-78 (PSU)	dimensionless
Sigma_t00	density sigma-t	kilograms/meter ³
time_start	Start time of sampling	HHMM
date_end	End date of sampling	YYYYMMDD
time_end	End time of sampling	HHMM
event	Cruise event id	YYYYMMDDHHMM
station	Station Id	text
COS_per_m	Conductivity	S/m
DepS	depth, salt water	meters
Flag	Data flag - Use/Indication not noted	(none)
T090	temperature, ITS-90	degrees celsius

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Instruments

Dataset-specific Instrument Name	CTD Seabird 19
Generic Instrument Name	CTD Sea-Bird SEACAT 19
Dataset-specific Description	CTD header file for SEEDS 2001 PF CTD data: * Sea-Bird SBE 19 Data File: * FileName = CTD19pf00.HEX * Software Version 4.233 * Temperature SN = 591 * Conductivity SN = 591 * System UpLoad Time = Jul 05 2001 07:08:41 ** Ship:kaiyomaru ** Cruise:9605 2001N3 ** Station:i08 PF ** Latitude:38-32.2 48-29.98N ** Longitude:135-00.0 164-59.67E * ds * SEACAT PROFILER V2.1 SN 591 07/05/01 16:25:44.181 * pressure sensor: serial no = 9B383, range = 3000 psia, tc = 0 * clk = 32767.922 iop = 136 vmain = 8.4 vlith = 5.3 * ncasts = 1 samples = 1949 free = 8598 lwait = 0 msec * sample rate = 1 scan every 0.5 seconds * minimum raw conductivity frequency for pump turn on = 3203 hertz * pump delay = 45 seconds * battery cutoff = 5.8 volts * number of voltages sampled = 0 * S> * cast 0 07/05 16:03:22 samples 0 to 1948 stop = switch off # nquan = 7 # nvalues = 296 # units = metric # name 0 = depS: depth, salt water [m] # name 1 = pr: pressure [db] # name 2 = t090: temperature, ITS-90 [deg C] # name 3 = c0S/m: conductivity [S/m] # name 4 = sal00: salinity, PSS-78 [PSU] # name 5 = sigma-t00: density, sigma-t [kg/m^3] # name 6 = flag: 0.000e+00 # span 0 = 1.000, 296.000 # span 1 = 1.036, 298.687 # span 2 = 1.2100, 5.6701 # span 3 = 2.875072, 3.264853 # span 4 = 31.7617, 34.0901 # span 5 = 25.2717, 27.1038 # span 6 = 0.000e+00, 0.000e+00 # interval = meters: 1 # start_time = Jul 05 2001 16:03:22 # bad_flag = -9.990e-29 # sensor 0 = Frequency 0 temperature, 591, 02-Nov-00 # sensor 1 = Frequency 1 conductivity, 591, 02-Nov-00, cpcor = -9.5700e-08 # sensor 2 = Pressure Voltage, 9B383, 09-Nov-00 # datcnv_date = Jul 05 2001 07:12:58, 4.233 # datcnv_in = PF00.HEX 19-591.CON # datcnv_skipover = 0 # filter_date = Jul 05 2001 07:13:03, 4.233 # filter_in = WORK0.CNV # filter_low_pass_tc_A = 0.500 # filter_low_pass_tc_B = 0.000 # filter_low_pass_A_vars = depS # filter_low_pass_B_vars = # alignctd_date = Jul 05 2001 07:13:08, 4.233 # alignctd_in = WORK1.CNV # alignctd_cond_advSecs = 0.000, 0.000 # alignctd_temp_advSecs = 0.500, 0.000 # alignctd_oxygen_current_advSecs = 0.000, 0.000 # alignctd_oxygen_temp_advSecs = 0.000, 0.000 # alignctd_wetstar_advSecs = 0.000 # binavg_date = Jul 05 2001 07:13:13, 4.233 # binavg_in = WORK2.CNV # binavg_bintype = Depth Bins # binavg_binsize = 1.00 # binavg_excl_bad_scans = yes # binavg_downcast_only = yes # binavg_skipover = 0 # binavg_surface_bin = no, min = 0.000, max = 0.000, value = 0.000 # derive_date = Jul 05 2001 07:13:17, 4.233 # derive_in = WORK3.CNV 19-591.CON # file_type = binary *END*
Generic Instrument Description	The Sea-Bird SBE 19 SEACAT Recorder measures conductivity, temperature, and pressure (depth). The SEACAT is self-powered and self-contained and can be deployed in profiling or moored mode. The SBE 19 SEACAT was replaced in 2001 by the 19plus. more information from Sea-Bird Electronics

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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 available" 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 Ocean was performed. First experiment of two (see SEEDS 2004)

A single enrichment of dissolved iron caused a large increase in phytoplankton standing 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 CTD sampling 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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