

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

**Website:** <https://www.bco-dmo.org/dataset/2892>

**Version:** 16September2008

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## Project

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

## Program

» [Iron Synthesis](#) (FeSynth)

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## Table of Contents

- [Dataset Description](#)
  - [Methods & Sampling](#)
  - [Data Processing Description](#)
- [Data Files](#)
- [Parameters](#)
- [Instruments](#)
- [Deployments](#)
- [Project Information](#)
- [Program Information](#)

## Dataset Description

### SEEDS 2001 CTD profile data

## Methods & Sampling

### CTD Stations organized in 2 groups:

#### Group 1: Upload Dates/Times from Header

PF PF00.HDR:\* System UpLoad Time = Jul 05 2001 07:08:41  
D0-I D0-I.HDR:\* System UpLoad Time = Jul 17 2001 00:23:29  
D2-I D2-I.HDR:\* System UpLoad Time = Jul 19 2001 22:32:11  
D4-I D4-I.HDR:\* System UpLoad Time = Jul 21 2001 22:16:34  
D7-I D7-I.HDR:\* System UpLoad Time = Jul 25 2001 00:11:42  
D9-I D9-I.HDR:\* System UpLoad Time = Jul 26 2001 23:12:10  
D9-I2 D9-I2.HDR:\* System UpLoad Time = Jul 26 2001 23:52:43  
D11-I D11-I.HDR:\* System UpLoad Time = Jul 28 2001 22:57:02  
D13-I D13-I.HDR:\* System UpLoad Time = Jul 31 2001 00:27:29  
D13-I2 D13-I2.HDR:\* System UpLoad Time = Jul 31 2001 01:08:04

#### Group 2: Upload Dates/Times from Header

D2-O D2-O.HDR:\* System UpLoad Time = Jul 20 2001 03:51:12  
D4-O D4-O.HDR:\* System UpLoad Time = Jul 22 2001 02:59:15  
D7-O D7-O.HDR:\* System UpLoad Time = Jul 25 2001 03:27:44  
D7-O2 D7-O2.HDR:\* System UpLoad Time = Jul 25 2001 04:08:06  
D9-O D9-O.HDR:\* System UpLoad Time = Jul 27 2001 04:38:17  
D11-O D11-O.HDR:\* System UpLoad Time = Jul 29 2001 01:37:42  
D13-O D13-O.HDR:\* System UpLoad Time = Jul 31 2001 05:04:04

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 T068 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

[ [table of contents](#) | [back to top](#) ]

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## Data Files

File
<b>CTD.csv</b> (Comma Separated Values (.csv), 505.78 KB) MD5:c22d007fe30a5e2dc663a3ecaea7e938 Primary data file for dataset ID 2892

[ [table of contents](#) | [back to top](#) ]

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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
T068	temperature, from CTD, T068 scale	degrees Celcius
Sal00	salinity, from CTD, PSS-78 (PSU)	dimensionless
Sigma_t00	density sigma-t	kilograms/meter <sup>3</sup>
Sigma_e00	Sigma_e00	kilograms/meter <sup>3</sup>
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

[ [table of contents](#) | [back to top](#) ]

## Instruments

<b>Dataset-specific Instrument Name</b>	CTD Seabird 911
<b>Generic Instrument Name</b>	CTD Sea-Bird 911
<b>Dataset-specific Description</b>	Sample CTD header file for SEEDS 2001: * Sea-Bird SBE 9 Raw Data File: * FileName = C:CTDDATAD0-I.HDR * Software Version 4.233 * Temperature SN = 2104 * Conductivity SN = 1723 * Number of Bytes Per Scan = 34 * Number of Voltage Words = 5 * System UpLoad Time = Jul 17 2001 00:23:29 * NMEA Latitude = 48 30.09 N * NMEA Longitude = 164 59.83 E * NMEA UTC (Time) = 00:40:27 * Store Lat/Lon Data = Append to Every Scan * Command Line = seasave -cCTDDATAoctGPS ** Ship: KAIYO MARU ** Cruise: leg1 3RD ** Station: D0-I ** Latitude: ** Longitude: ** ** ** *END*
<b>Generic Instrument Description</b>	The Sea-Bird SBE 911 is a type of CTD instrument package. The SBE 911 includes the SBE 9 Underwater Unit and the SBE 11 Deck Unit (for real-time readout using conductive wire) for deployment from a vessel. The combination of the SBE 9 and SBE 11 is called a SBE 911. The SBE 9 uses Sea-Bird's standard modular temperature and conductivity sensors (SBE 3 and SBE 4). The SBE 9 CTD can be configured with auxiliary sensors to measure other parameters including dissolved oxygen, pH, turbidity, fluorescence, light (PAR), light transmission, etc.). More information from Sea-Bird Electronics.

[ [table of contents](#) | [back to top](#) ]

## Deployments

**KY0103-02**

<b>Website</b>	<a href="https://www.bco-dmo.org/deployment/57835">https://www.bco-dmo.org/deployment/57835</a>
<b>Platform</b>	R/V Kaiyo-Maru
<b>Start Date</b>	2001-07-13
<b>End Date</b>	2001-08-06
<b>Description</b>	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 available" cruise track from the data contributed

[ [table of contents](#) | [back to top](#) ]

## 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](#)

## 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, CO<sub>2</sub> 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](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).



[ [table of contents](#) | [back to top](#) ]