XBT data (depth, temperature) from R/V Tangaroa cruise 61TG_3052 in the Southern Ocean in 1999 (SOIREE project)

Website: https://www.bco-dmo.org/dataset/2861
Version: 15July2008
Version Date: 2008-07-15

Project
» Southern Ocean Iron Release Experiment (SOIREE)

Program
» Iron Synthesis (FeSynth)

Contributors	Affiliation	Role
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Table of Contents

Dataset Description

SOIREE XBT data (depth, temperature, NO SOUND VELOCITY)
XBT data collected during the transit from New Zealand to the SOIREE site.

The *.edf files are text files, produced when the data were collected and have not had any further processing.

Methods & Sampling

See SOIREE Preliminary Voyage Report
XBT data was collected during the transit from New Zealand to the SOIREE site.
Raw .edf files text files were produced when the data were collected,

Data Processing Description

See SOIREE Preliminary Voyage Report
BCO-DMO Processing Notes
Generated from original .EDF files provided on the Deep-Sea Research II 48 (2001) accompanying CD-Rom Perl script SOIREE_EDF2xbt.pl v.2008/07/15 used to reformat .EDF files to BCO-DMO compatible .xbt files

BCO-DMO Edits
- Parameter names modified to conform to BCO-DMO convention
- date reformatted to YYYYMMDD
- time reformatted to HHMM

[table of contents | back to top]

Data Files

File
XBT.csv (Comma Separated Values (.csv), 777.76 KB) MD5:618d4d9f24e9f6c8d4c135d70b54cde4 Primary data file for dataset ID 2861

[table of contents | back to top]

Parameters

Parameter	Description	Units
date	date	YYYYMMDD
lon	longitude, negative denotes West	decimal degrees
lat	latitude, negative denotes South	decimal degrees
time	time	HHMM
Xseq	XBT Sequence Number	integer
depth_xbt	XBT depth	meters
temp_xbt	XBT temperature	degrees celsius

[table of contents | back to top]

Instruments

Dataset-specific Instrument Name	Expendable Bathy Thermograph
Generic Instrument Name	Expendable Bathythermograph
Dataset-specific Description	Sample XBT .edf header for SOIREE: // This is an MK12 EXPORT DATA FILE (EDF) // Date of Launch : 02/06/99 Time of Launch : 19:38:32 Sequence # : 32 Latitude : -61.413 Longitude : 141.740 Serial # : // // Here are the contents of the memo fields. // // // Here is some probe information for this drop // Probe Type : T-7 Terminal Depth : 800 m Depth Coefficient 1 : .00216 Depth Coefficient 2 : 6.472 // Raw Data Filename : T7$00032.RDF // Display Units : METRIC // // And here are the depth(M)/temperature(C) pairs... //
Generic Instrument Description	An XBT is an expendable free-fall temperature probe that provides a profile of measured temperature against depth calculated from a fall-rate model. For example, two popular XBT models are the T-5 and T-7 probes from Sippican. More information is available from Lockheed Martin Sippican at URL: http://www.sippican.com/.

[table of contents | back to top]

Deployments

61TG_3052

Website	https://www.bco-dmo.org/deployment/57827
Platform	R/V Tangaroa
Report	http://bcodata.whoi.edu/Fe_Synthesis/SOIREE/SOIREE_cruisereport.pdf
Start Date	1999-01-31
End Date	1999-03-01
Description	Cruise to the Southern Ocean as part of the Fe Sythesis project whose aim was to maintain a coherent patch of iron-enriched seawater for the duration of SOIREE and to interpret any iron-mediated effects on the patch by conducting measurements and performing experiments during this period.

[table of contents | back to top]

Project Information

Southern Ocean Iron Release Experiment (SOIREE)

Coverage: Southern Ocean

Project in the Southern Ocean aimed at maintaining a coherent patch of iron-enriched seawater for the duration of project and to interpret any iron-mediated effects on the patch by conducting measurements and performing experiments during this period of the project.

The Southern Ocean Iron RElease Experiment (SOIREE), was the first in situ iron fertilization experiment performed in the polar waters of the Southern Ocean. SOIREE was an interdisciplinary study involving participants from six countries, and took place in February 1999 south of the Polar Front in the Australasian-Pacific sector of the Southern Ocean.

Approximately 3800 kg of acidified FeSO4.7H2O and 165 g of the tracer sulphur hexafluoride (SF6) were added to a 65-m deep surface mixed layer over an area of ~50 km2. Initially, mean dissolved iron

concentrations were ~2.7 nM, but decreased to ambient levels within days, requiring subsequent additions of 1550-1750 kg of acidified FeSO4.7H2O on days 3, 5 and 7 of the experiment.

During the 13-day site occupation, there were iron-mediated increases in phytoplankton growth rates, with marked increases in chlorophyll a (up to 2 µgl-1) and production rates (up to 1.3 gCm-2d-1). These resulted in subsequent changes in the pelagic ecosystem structure, and in the cycling of carbon, silica and sulphur, such as a 10% drawdown of surface CO2.

The SOIREE bloom persisted for >40 days following our departure from the site, as observed via SeaWiFS remotely sensed observations of Ocean Colour.

BCO-DMO Note:
All original data and metadata provided on a CD-Rom accompanying the Deep-Sea Research II 48 (2001) volume. The CD-Rom contains the main SOIREE datasets and ancillary information including the pre-experiment 'desktop' database study for site-selection, and satellite images of the SOIREE bloom.

Related files

SOIREE Preliminary Voyage Report
SOIREE Introduction and Summary, Deep-Sea Research II 48 (2001) 2425-2438
SOIREE Cruise Track

[table of contents | back to top]

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).

[table of contents | back to top]