Simulated in situ (SIS) summary of carbon uptake from the R/V Tangaroa 61TG_3052 cruise in the Southern Ocean during 1999 (SOIREE project)

Website: https://www.bco-dmo.org/dataset/2883
Version: 17August2009
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Project
» Southern Ocean Iron Release Experiment (SOIREE)

Program
» Iron Synthesis (FeSynth)

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Dataset Description

SOIREE Simulated in situ (SIS) data summary of carbon uptake (mg/m3)
All 14C-uptake data from Simulated In Situ incubations for depths sampled

Methods & Sampling

See SOIREE Preliminary Voyage Report

For more information refer to Gall et al (2001)
"Phytoplankton processes (Part 2): Rates of primary
production and factors controlling algal growth during the

Southern Ocean Iron RElease Experiment (SOIREE)".

Data Processing Description

See SOIREE Preliminary Voyage Report

For more information refer to Gall et al (2001)
"Phytoplankton processes (Part 2): Rates of primary
production and factors controlling algal growth during the

Southern Ocean Iron RElease Experiment (SOIREE)".

BCO-DMO Processing Notes

Generated from original SIS_Summary.xls file provided on the

Deep-Sea Research II 48 (2001) accompanying CD-Rom

BCO-DMO Edits

- parameter names modified to conform to BCO-DMO convention

- date_UTC, time_UTC, lat, lon added from SOIREE_Stations_CTDSampling.xls

- Data plots in original spreadsheet removed

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Data Files

File
SIS_summary.csv (Comma Separated Values (.csv), 5.85 KB) MD5:85dbb2cdd3776832da639339868231d0 Primary data file for dataset ID 2883

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Parameters

Parameter	Description	Units
StationID	Cruise Station Id and CTD Cast #	text
Date_NZST	New Zealand Standard Date	YYYYMMDD
lon	longitude, negative denotes West	decimal degrees
lat	latitude, negative denotes South	decimal degrees
Time_NZST	New Zealand Standard Time	HHMM

date_UTC	UTC Date	YYYYMMDD
time_UTC	UTC time	HHMM
REF	Reference	integer
DAYM	Day of Month	decimal days
DAYE	Day of Experiment	decimal days
DTN	Date/Time Number	decimal
Patch	Patch Location (In/Out)	text
depth	Collection Depth	meters
CUT	Total 14C-Uptake (>0.2u filter fraction)	mg/m^3
CU20	14C-Uptake (>20u filter fraction)	mg/m^3
CU5	14C-Uptake (20-5u filter fractions)	mg/m^3
CU2	14C-Uptake (5-2u filter fractions)	mg/m^3
CU0point2	14C-Uptake (2-0.2u filter fractions)	mg/m^3
CUTcorr	Corrected Total 14C-Uptake (>0.2u filter fraction)	mg/m^3
CU20corr	Corrected 14C-Uptake (>20u filter fraction)	mg/m^3
CU5corr	Corrected 14C-Uptake (20-5u filter fractions)	mg/m^3
CU2corr	Corrected 14C-Uptake (5-2u filter fractions)	mg/m^3
CU0point2corr	Corrected 14C-Uptake (2-0.2u filter fractions)	mg/m^3

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Instruments

Dataset-specific Instrument Name	CTD Seabird 911
Generic Instrument Name	CTD Sea-Bird 911
Dataset-specific Description	NIWA's Seabird 911plus CTD and related instrumentation
Generic Instrument Description	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.

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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.

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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.
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Related files

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

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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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