

Concentration of photosynthetic pigments determined by HPLC from R/V Tangaroa cruise 61TG_3052 in the Southern Ocean in 1999 (SOIREE project)

Website: <https://www.bco-dmo.org/dataset/2878>

Version: 22August2008

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Project

» [Southern Ocean Iron Release Experiment](#) (SOIREE)

Program

» [Iron Synthesis](#) (FeSynth)

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Dataset Description

SOIREE Concentration of photosynthetic pigments determined by HPLC

This dataset contains all the information regarding the HPLC chromatograms (retention times, areas, heights and calculated concentrations).

Methods & Sampling

See [SOIREE Preliminary Voyage Report](#)

For more information refer to Gall et al (2001)
"Phytoplankton processes (Part 1): Community structure 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 1): Community structure during
the Southern Ocean Iron Release Experiment (SOIREE)"

BCO-DMO Processing Notes

Generated from original file HPLCSummaryforCD.xls Tab: All Pigments
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 reformatted to YYYYMMDD
- time reformatted to HHMM
- Lat/Lon columns converted from degs mins to decimal degrees
- Added negative sign "-" to Lat
- added 'nd' to blank cells
- Data plot in original spreadsheet removed

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Data Files

File
HPLC_summary_All.csv (Comma Separated Values (.csv), 130.22 KB) MD5:8831ff830646c0b2c82ced27ee94ab74 Primary data file for dataset ID 2878

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Parameters

Parameter	Description	Units
station	Cruise Station Id	text
date_local	New Zealand Standard Date	YYYYMMDD
lon	longitude, negative denotes West	decimal degrees
lat	latitude, negative denotes South	decimal degrees
time_local	New Zealand Standard Time	HHMM
Patch	Patch Location (In/Out)	text
depth	Collection Depth	meters
DAYE	Day of experiment	decimal days
Depth_ID	Depth ID (use??)	integer
Vol	Volume filtered	liters
EV	Extraction Volume	mliters
HPLC_ChI_conc	HPLC Chlorophyll Concentration	mg/m ³
CTD_cast	CTD Cast number	text
Date_Time	Date and Time (NZST)	DD-Mon-YY HH:MM
Pigment	Pigment	text
HPLCFile	HPLCFile	text
HPLC_DF	Multiplication factor for LC10	(TBD)
RT	Retention Time (?????)	(TBD)
Area	Area (?????)	(TBD)
Height	Height (?????)	(TBD)
Concentration	Pigment Concentration	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 µg l⁻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](#)

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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