

MIRAI MR08-04 Bottle Sampling Water Chemical Analysis

Last Modified: 2017-07-28

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Cruise ID: [MR08-04](#)

Bottle Sampling Water Chemical Analysis: Processed (PI)

Data Policy: [JAMSTEC](#)

Observation Items: Temperature, Salinity, Dissolved oxygen, Fluorescence, CDOM, Silicate, Nitrate, Nitrite, Phosphate, Ammonia, Alkalinity, Potential temperature, Density

Science Keywords:

OCEANS > OCEAN CHEMISTRY > AMMONIA
OCEANS > OCEAN CHEMISTRY > NITRITE
OCEANS > OCEAN CHEMISTRY > NITRATE
OCEANS > OCEAN CHEMISTRY > NUTRIENTS
OCEANS > OCEAN CHEMISTRY > OXYGEN
OCEANS > OCEAN CHEMISTRY > PHOSPHATE
OCEANS > OCEAN CHEMISTRY > SILICATE
OCEANS > OCEAN CHEMISTRY > SALINITY
OCEANS > OCEAN TEMPERATURE > WATER TEMPERATURE
OCEANS > SALINITY/DENSITY > SALINITY
OCEANS > OCEAN CHEMISTRY > ALKALINITY
OCEANS > OCEAN OPTICS > FLUORESCENCE
OCEANS > OCEAN TEMPERATURE > POTENTIAL TEMPERATURE

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR08-04_all.pdf

For Using Data

Principal Investigator

CTDTMP : Koji Shimada (Tokyo University of Marine Science and Technology / JAMSTEC)
SBE35 : Koji Shimada (Tokyo University of Marine Science and Technology / JAMSTEC)
CTDSAL : Koji Shimada (Tokyo University of Marine Science and Technology / JAMSTEC)
SALNTY : Koji Shimada (Tokyo University of Marine Science and Technology / JAMSTEC)
CTDOXY : Koji Shimada (Tokyo University of Marine Science and Technology / JAMSTEC)
OPTOXY : Koji Shimada (Tokyo University of Marine Science and Technology / JAMSTEC)
OXYGEN : Motoyo Itoh (JAMSTEC)
FLUOR : Koji Shimada (Tokyo University of Marine Science and Technology / JAMSTEC)
CTDCDOM : Koji Shimada (Tokyo University of Marine Science and Technology / JAMSTEC)
SILCAT : Naoyuki Kurita (JAMSTEC)
NITRAT : Naoyuki Kurita (JAMSTEC)
NITRIT : Naoyuki Kurita (JAMSTEC)
PHSPHT : Naoyuki Kurita (JAMSTEC)
NH4 : Naoyuki Kurita (JAMSTEC)
ALKALI : Naoyuki Kurita (JAMSTEC)

Use Constraints

See [Terms and Conditions](#) about constrain of use.

Data Citation

See [Terms and Conditions](#) about data citation.

Instrument

Instrument:

Salinity measurement system



Instrument:

Nutrient analyzer(4ch) (- MR09-01)



Instrument:

Titration for DO (- MR11-05 Leg2)



Overview

Citation

Shimada, K. 2008, R/V Mirai Cruise Report MR08-04, 158pp., JAMSTEC, Yokosuka, Japan.

Upon consultation in advance with the chief of investigation and the person(s) in charge of research issues who gathered that data, we request that the text of the results material contain a statement to the effect that it was obtained during the R/V Mirai cruise of MR08-04 under the project of JWACS, the Chief Scientist, Koji Shimada(JAMSTEC), and the following Principal Investigators (PI) for gathering the data.

Chief Scientist

Koji Shimada

Tokyo University of Marine Science and Technology / Japan Agency for Marine - Earth Science and Technology (JAMSTEC)

4-5-7, Konan, Minato-ku, Tokyo,108-8477, Japan

Tel: +81-3-5463-0465 Fax: +81-3-5463-0378

E-mail: koji AT kaiyodai.ac.jp

PI for CTD

Koji Shimada (Tokyo University of Marine Science and Technology / JAMSTEC)

Collaborators:

Motoyo Itoh (JAMSTEC)

Motoyo Itoh (JAMSTEC)

PI for bottle salinity

Koji Shimada (Tokyo University of Marine Science and Technology / JAMSTEC)

Collaborators:

Motoyo Itoh (JAMSTEC)

PI for bottle oxygen

Motoyo Itoh (JAMSTEC)

Collaborators:

Koji Shimada (Tokyo University of Marine Science and Technology / JAMSTEC)

Naoyuki Kurita (JAMSTEC)

PI for nutrients

Naoyuki Kurita (JAMSTEC)

Collaborators:

Koji Shimada (Tokyo University of Marine Science and Technology / JAMSTEC)

Motoyo Itoh (JAMSTEC)

Shigeto Nishino (JAMSTEC)

PI for total alkalinity

Naoyuki Kurita (JAMSTEC)

Collaborators:

Michiyo Yamamoto-Kawai (Institute of Ocean Sciences, Canada)

Notice

Data flags of FLUOR are Unknown (flag1) because of lack of the calibration.

Information on CTD data

(1) Temperature sensor

Model : SBE3, Sea-Bird Electronics, Inc.

Measurement range : -5.0 to +35degC

Accuracy : 0.001degC

Resolution : 0.0002degC

(2) Salinity sensor

Model : SBE4, Sea-Bird Electronics, Inc.

Measurement range : 0.0 to 7S/m

Accuracy : 0.0003S/m

Resolution : 0.00004S/m

(3) Pressure sensor

Model : SBE9plus, Sea-Bird Electronics, Inc.

Measurement range : up to 10500m

Accuracy : 0.015%F.S.

Resolution : 0.001%F.S.

(4) DO sensor

Model : SBE43, Sea-Bird Electronics, Inc.

Measurement range : 120% of surface saturation

Accuracy : 2% of saturation

(5) Oxygen Optode

Model : Oxygen Optode 3830, Aanderaa Data Instruments AS

Measurement range : 0-120%

Accuracy : 5%

Resolution : 0.4%

(6) Fluorometer

Model : Seapoint Sensors, Inc.

Measurement range : 0-5ug/l

Resolution : 0.02ug/l

(7)CDOM sensor

Model : Wet Labs, Inc.

Measurement range : 4.96V

Resolution : 1.6mV

(8) Deep Ocean Standards Thermometer

Model : SBE 35, Sea-Bird Electronics, Inc.

Measurement range : -5.0 to +35degC

Accuracy : 0.001degC

Resolution : 0.000025degC

Information on Chemical and Biological data

1. Dissolved Oxygen

(1) Instruments : Burette:APB-510 manufactured by Kyoto Electronic Co. Ltd. / 10 cm3 of titration vessel

Detector and Software: Automatic photometric titrator manufactured by Kimoto Electronic Co. Ltd

(2) Methods : Winkler method/photometric methods

(3) Precision : 0.39 umol kg-1

(4) Reference Material/Calibration : 0.001667M KIO3 solution

2. Salinity

(1) Instruments : Autosol salinometer model 8400B (Guildline Instruments Ltd.)

(2) Methods : -

(3) Precision : 0.0003 PSU

(4) Reference Material/Calibration : IAPSO Standard Sea Water batch P149 (Ocean Scientific International Ltd.)

3. Silicate

(1) Instruments : TRAACS800 (Bran+Luebbe)

(2) Methods : Molybdenum blue method

(3) Precision : C.V. 0.06% (85.5uM) Median of precision

(4) Reference Material/Calibration : RMNS [Aoyama et al., 2007] and Silicate standard solution, the silicate primary standard, was obtained from Merck, Ltd.
This standard solution, traceable to SRM from NIST was 1000 mg per liter.

4. Nitrate

- (1) Instruments : TRAACS800 (Bran+Luebbe)
- (2) Methods : Diazotization method (reduced to nitrite by Cd - Cu tube)
- (3) Precision : C.V. 0.07% (36.6uM) Median of precision
- (4) Reference Material/Calibration : KNO3 solution and RMNS [Aoyama et al., 2007]

5. Nitrite

- (1) Instruments : TRAACS800 (Bran+Luebbe)
- (2) Methods : Diazotization method
- (3) Precision : C.V. 0.10% (0.8uM) Median of precision
- (4) Reference Material/Calibration : NaNO2 solution and RMNS [Aoyama et al., 2007]

6. Phosphate

- (1) Instruments : TRAACS800 (Bran+Luebbe)
- (2) Methods : Molybdenum blue method
- (3) Precision : C.V. 0.11% (3.6uM) Median of precision
- (4) Reference Material/Calibration : KH2PO4 solution and RMNS [Aoyama et al., 2007]

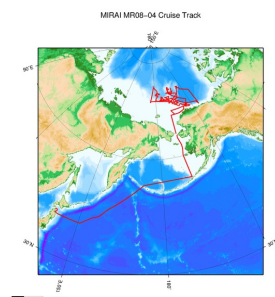
7. Ammonia

- (1) Instruments : TRAACS800 (Bran+Luebbe)
- (2) Methods : Indophenol method/gas diffusion method(GDM)
- (3) Precision : C.V. 0.30% (8.0uM) Median of precision
- (4) Reference Material/Calibration:(NH4)2SO4 solution

8. Total Alkalinity

- (1) Instruments : Measurement of AT was made based on spectrophotometry using a custom-made system(Nippon ANS, Inc.).
The system comprises of a water dispensing unit and a spectrophotometer (Cary 50 Scan, Varian)
- (2) Methods : single step acid additional procedure/spectrophotometry
- (3) Precision : 0.46 umol kg-1
- (4) Reference Material/Calibration : Na2CO3 solution

Related Information



[Enlarge Image](#)

MR08-04

Ship Name: MIRAI
Period: 2008-08-15 - 2008-10-09
Chief Scientist: Koji Shimada (JAMSTEC)
Project Name: [Arctic Ocean Climate System Reaserch]
Proposal R/V Mirai International Polar Year 2008 cruise
Title:

Update History

2017-07-28	An observation data was registerd.
2015-05-29	An observation data was registerd.
2013-08-29	An observation data was registerd.
2012-10-30	An observation data was registerd.
2012-10-26	An observation data was registerd.

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HAKUHO MARU

Information of the Submersibles

KAIKO
SHINKAI 2000
SHINKAI 6500
DEEP TOW
HYPER-DOLPHIN
URASHIMA
YOKOSUKA DEEP TOW
6K Camera DEEP TOW
6K Sonar DEEP TOW
KM-ROV
POWER GRAB SAMPLER (SHELL)
POWER GRAB SAMPLER (CLOW)
BMS

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MIRAI MR08-04 Bottle Sampling Water Chemical Analysis

Last Modified: 2017-07-28

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Cruise ID: [MR08-04](#)

Bottle Sampling Water Chemical Analysis: Processed (PI)

Data Policy: [JAMSTEC](#)

Exchange Format

Provided in the Exchange Format of CCHDO (CLIVAR and Carbon Hydrographic Data Office).

Please see the following link for details of Exchange Format.

[CCHDO | CLIVAR & Carbon Hydrographic Data Office](#)

Format Information

Column No.	Column Heading Mnemonic	Units Mnemonic	Reporting Precision FORTRAN Format	Comments
1	EXPCODE		A14	Expedition code
2	SECT		A6	For WOCE data the WHP section identifier
3	STNNBR		A6	Station number
4	CASTNO		I3	Cast number
5	SAMPNO		A7	Sample number
6	BTLNBR		A7	Bottle identification number
7	BTLNBR_FLAG_W		I1	Bottle quality flag
8	DATE		I8	Cast date(UTC)
9	TIME	UTC	I4	Cast time (UTC)
10	LATITUDE	DEG	F8.3	LATITUDE
11	LONGITUDE	DEG	F9.3	LONGITUDE
12	DEPTH	M	I5	Reported depth to bottom.
13	CTDDPT	M	F9.1	Depth
14	CTDDPT_FLAG_W		I1	Quality flag for CTD data
15	CTDPRS	DBAR	F9.1	Pressure
16	CTDPRS_FLAG_W		I1	Quality flag for CTD data
17	CTDTMP	ITS-90	F9.4	Temperature
18	CTDTMP_FLAG_W		I1	Quality flag for CTD data
19	SBE35	ITS-90	F10.5	Temperature from Deep Ocean Standards Thermometer
20	SBE35_FLAG_W		I1	Quality flag for CTD data
21	CTDSAL	PSS-78	F9.4	CTD Salinity sensor
22	CTDSAL_FLAG_W		I1	Quality flag for CTD data
23	SALNTY	PSS-78	F9.4	Salinity
24	SALNTY_FLAG_W		I1	Quality flags for water samples
25	CTDOXY	UMOL/KG	F9.2	CTD Oxygen sensor
26	CTDOXY_FLAG_W		I1	Quality flag for CTD data
27	OPTOXY	UMOL/KG	F9.2	Optode oxygen
28	OPTOXY_FLAG_W		I1	Quality flag for CTD data
29	OXYGEN	UMOL/KG	F9.2	Oxygen
30	OXYGEN_FLAG_W		I1	Quality flags for water samples
31	FLUOR	UG/L	F9.2	Fluorometer
32	FLUOR_FLAG_W		I1	Quality flag for CTD data
33	CTDCDOM	MG/CUM	F9.2	CDOM (Colored dissolved organic matter) sensor
34	CTDCDOM_FLAG_W		I1	Quality flag for CTD data
35	SILCAT	UMOL/KG	F9.2	Silicate
36	SILCAT_FLAG_W		I1	Quality flags for water samples
37	NITRAT	UMOL/KG	F9.2	Nitrate
38	NITRAT_FLAG_W		I1	Quality flags for water samples
39	NITRIT	UMOL/KG	F9.2	Nitrite
40	NITRIT_FLAG_W		I1	Quality flags for water samples
41	PHSPHT	UMOL/KG	F9.3	Phosphate
42	PHSPHT_FLAG_W		I1	Quality flags for water samples
43	NH4	UMOL/KG	F9.2	Ammonium
44	NH4_FLAG_W		I1	Quality flags for water samples
45	ALKALI	UMOL/KG	F9.1	Total alkalinity
46	ALKALI_FLAG_W		I1	Quality flags for water samples
47	THETA	DEG C	F9.4	Potential temperature
48	SIG0	KG/CUM	F9.4	Density

ODV Format

Please see the following link for details of ODV Format and ODV Software.

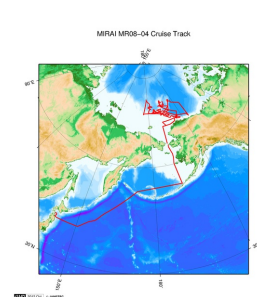
[Ocean Data View \(ODV\)](#)

Format Information

Column No.	Column Heading	Comments
1	Cruise	Cruise Label
2	Station	Station number_Cast number
3	Type	Station type
4	mon/day/yr	Cast date(UTC)
5	hh:mm	Cast time (UTC)
6	Latitude [degrees_north]	LATITUDE
7	Longitude [degrees_east]	LONGITUDE
8	Bot. Depth [m]	Reported depth to bottom.
9	CTDDPT[M]	Depth
10	CTDDPT_FLAG_W	Quality flag for CTD data

Column No.	Column Heading	Comments
11	CTDPRS[DBAR]	Pressure
12	QF	Quality flag for CTD data
13	CTDTMP[ITS-90]	Temperature
14	QF	Quality flag for CTD data
15	SBE35[ITS-90]	Temperature from Deep Ocean Standards Thermometer
16	QF	Quality flag for CTD data
17	CTDSAL[PSS-78]	CTD Salinity sensor
18	QF	Quality flag for CTD data
19	SALNTY[PSS-78]	Salinity
20	QF	Quality flags for water samples
21	CTDOXY[UMOL/KG]	CTD Oxygen sensor
22	QF	Quality flag for CTD data
23	OPTOXY[UMOL/KG]	Optode oxygen
24	QF	Quality flag for CTD data
25	OXYGEN[UMOL/KG]	Oxygen
26	QF	Quality flags for water samples
27	FLUOR[UG/L]	Fluorometer
28	QF	Quality flag for CTD data
29	CTDCDOM[MG/CUM]	CDOM (Colored dissolved organic matter) sensor
30	QF	Quality flag for CTD data
31	SILCAT[UMOL/KG]	Silicate
32	QF	Quality flags for water samples
33	NITRAT[UMOL/KG]	Nitrate
34	QF	Quality flags for water samples
35	NITRIT[UMOL/KG]	Nitrite
36	QF	Quality flags for water samples
37	PHSPHT[UMOL/KG]	Phosphate
38	QF	Quality flags for water samples
39	NH4[UMOL/KG]	Ammonium
40	QF	Quality flags for water samples
41	ALKAL[UMOL/KG]	Total alkalinity
42	QF	Quality flags for water samples
43	THETA[DEG C]	Potential temperature
44	QF	Quality flag for CTD data
45	SIG0[KG/CUM]	Density
46	QF	Quality flag for CTD data
47	SAMPNO	Sample number
48	QF	Bottle quality flag

Related Information



[Enlarge Image](#)

MR08-04

Ship Name: MIRAI
 Period: 2008-08-15 - 2008-10-09
 Chief Scientist: Koji Shimada (JAMSTEC)
 Project Name: [Arctic Ocean Climate System Reaserch]
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MIRAI MR08-04 Bottle Sampling Water Chemical Analysis

Last Modified: 2017-07-28

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Cruise ID: [MR08-04](#)

Bottle Sampling Water Chemical Analysis: Processed (PI)

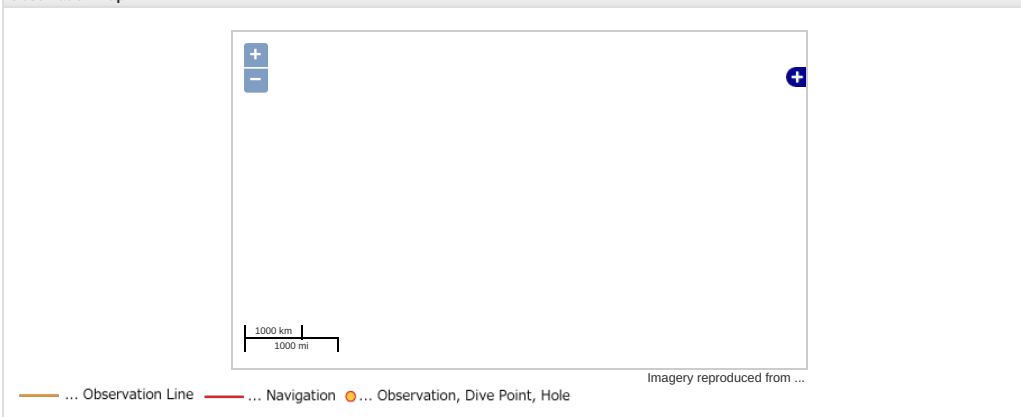
Data Policy: [JAMSTEC](#)

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OCEANS > OCEAN OPTICS > FLUORESCENCE
OCEANS > OCEAN TEMPERATURE > POTENTIAL TEMPERATURE

Observation Map



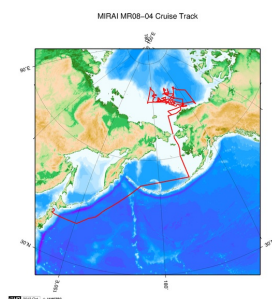
Data List

☐ File names

☐ MR080400_ex_bot.csv

☐ MR080400_odv_bot.txt

Related Information



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MR08-04

Ship Name: MIRAI

Period: 2008-08-15 - 2008-10-09

Chief Scientist: Koji Shimada (JAMSTEC)

Project Name: [Arctic Ocean Climate System Reaserch]

Proposal R/V Mirai International Polar Year 2008 cruise

Title:

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