

MIRAI MR06-03 Leg1 Bottle Sampling Water Chemical Analysis

Last Modified: 2017-07-28

ReadMe Observation Data Data Format Quality Information

Cruise ID: [MR06-03 Leg1](#)

Bottle Sampling Water Chemical Analysis: Processed (PI)

Data Policy: [JAMSTEC](#)

Observation Items: Temperature, Salinity, Dissolved oxygen, Fluorescence, Transmittance, Silicate, Nitrate, Nitrite, Phosphate, Ammonia, Total inorganic carbon, Alkalinity, pH, Potential temperature, Density

Science Keywords:

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

Cruise Report

http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR06-03_leg1-2_all.pdf

For Using Data

Principal Investigator

CTDTMP : Masahide Wakita (JAMSTEC)
SBE35 : Makio Honda (JAMSTEC)
CTDSAL : Masahide Wakita (JAMSTEC)
SALNTY : Masahide Wakita (JAMSTEC)
CTDOXY : Makio Honda (JAMSTEC)
OXYGEN : Masahide Wakita (JAMSTEC)
DWNPRS : Makio Honda (JAMSTEC)
DWNNOXY : Makio Honda (JAMSTEC)
FLUOR : Makio Honda (JAMSTEC)
XMISS : Makio Honda (JAMSTEC)
SILCAT : Masahide Wakita (JAMSTEC)
NITRAT : Masahide Wakita (JAMSTEC)
NITRIT : Masahide Wakita (JAMSTEC)
PHSPHT : Masahide Wakita (JAMSTEC)
NH4 : Masahide Wakita (JAMSTEC)
TCARBN : Masahide Wakita (JAMSTEC)
ALKALI : Masahide Wakita (JAMSTEC)
PH : Masahide Wakita (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:

Total dissolved inorganic carbon measurement system (- MR11-E02)



Instrument:

pH meter (MR02-K03 -)



Instrument:

Titration for DO (- MR11-05 Leg2)



Notice

·Temperature data measured by a mercury thermometer is listed in CTDMP column at SAMPNO 0 which means sampled by bucket. Please notice that this data is different from other data in format (f9.1) and instrument.

·Data flags of FLUOR and XMISS 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 : 0-15ml/l
Accuracy : 0.1ml/l
Resolution : 0.01ml/l
- (5) Fluorometer
Model : Seapoint Sensors, Inc.
- (6) Transmissometer
Model : WET Labs, Inc.
- (7) Deep Ocean Standards Thermometer
Model : SBE 35, Sea-Bird Electronics, Inc.

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 : 0.087 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 : 0.0002 PSU
- (4) Reference Material/Calibration : IAPSO Standard Sea Water batch P146 (Ocean Scientific International Ltd.)

3. Silicate

- (1) Instruments : TRAACS800 (Bran+Luebbe)
- (2) Methods : Molybdenum blue method
- (3) Precision : C.V. 0.07% (171uM)
- (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% (55uM)
- (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. 0.07% (1.2uM)
- (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. 0.09% (3.6uM)
- (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. 0.25% (4.0uM)
- (4) Reference Material/Calibration : (NH₄)₂SO₄ solution

8. Total inorganic carbon

- (1) Instruments : the automated TCO₂ analyzer (Nippon ANS, Inc.) equipped with carbon coulometer 5012 (UIC Inc.)

- (2) Methods : coulometry
(3) Precision : 1.2umol kg⁻¹
(4) Reference Material/Calibration : Na₂CO₃ solution and the CRM provided by Dr. Dickson in Scripps Institute of Oceanography

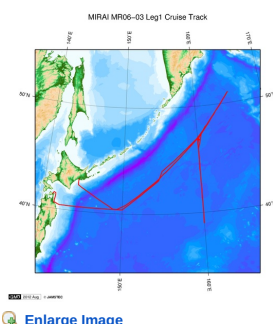
9. Total Alkalinity

- (1) Instruments : TALK measuring systems (TA-1000), which were made by Nippon ANS, Inc.
(2) Methods : Modified Gran titration/Closed-cell/potentiometry
(3) Precision : 1.1 umol kg⁻¹
(4) Reference Material/Calibration : Na₂CO₃ solution and the CRM provided by Dr. Dickson in Scripps Institute of Oceanography

10. pH

- (1) Instruments : a glass / reference electrode with a pH / Ion meter (Radiometer PHM240)
(2) Methods : potentiometric methods at 25deg-C
(3) Precision : 0.001 pH unit
(4) Reference Material/Calibration : total hydrogen ion scale

Related Information



MR06-03 Leg1

Ship Name: MIRAI
Period: 2006-05-26 - 2006-06-18
Chief Scientist: Makio Honda (JAMSTEC)
Project Name: [Station K2, Station KNOT]

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Update History

2017-07-28	An observation data was registerd.
2015-05-29	An observation data was registerd.
2013-08-28	An observation data was registerd.
2012-11-25	An observation data was registerd.

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6K Camera DEEP TOW
6K Sonar DEEP TOW
KM-ROV
POWER GRAB SAMPLER (SHELL)
POWER GRAB SAMPLER (CLOW)
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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		A18	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	CTDPRS	DBAR	F9.1	Pressure
14	CTDPRS_FLAG_W		I1	Quality flag for CTD data
15	CTDTMP	ITS-90	F9.4	Temperature
16	CTDTMP_FLAG_W		I1	Quality flag for CTD data
17	SBE35	ITS-90	F10.5	Temperature from Deep Ocean Standards Thermometer
18	SBE35_FLAG_W		I1	Quality flag for CTD data
19	CTDSAL	PSS-78	F9.4	CTD Salinity sensor
20	CTDSAL_FLAG_W		I1	Quality flag for CTD data
21	SALNTY	PSS-78	F9.4	Salinity
22	SALNTY_FLAG_W		I1	Quality flags for water samples
23	CTDOXY	UMOL/KG	F9.1	CTD Oxygen sensor
24	CTDOXY_FLAG_W		I1	Quality flag for CTD data
25	OXYGEN	UMOL/KG	F9.1	Oxygen
26	OXYGEN_FLAG_W		I1	Quality flags for water samples
27	DWNPRS	DBAR	F9.1	Down-cast pressure at the same density of the up-cast CTD data
28	DWNPRS_FLAG_W		I1	Quality flag for CTD data
29	DWNOXY	UMOL/KG	F9.1	Down-cast CTD oxygen at pressure of DWNPRS
30	DWNOXY_FLAG_W		I1	Quality flag for CTD data
31	FLUOR	UG/L	F9.2	Fluorometer
32	FLUOR_FLAG_W		I1	Quality flag for CTD data
33	XMISS	%TRANS	F9.1	Transmissometer
34	XMISS_FLAG_W		I1	Quality flag for CTD data
35	SILCAT	UMOL/KG	F9.1	Silicate
36	SILCAT_FLAG_W		I1	Quality flags for water samples
37	NITRAT	UMOL/KG	F9.1	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	F9.2	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	TCARBN	UMOL/KG	F9.1	Total carbon
46	TCARBN_FLAG_W		I1	Quality flags for water samples
47	ALKALI	UMOL/KG	F9.1	Total alkalinity
48	ALKALI_FLAG_W		I1	Quality flags for water samples
49	PH	-	F9.3	pH
50	PH_FLAG_W		I1	Quality flags for water samples
51	THETA	DEG C	F9.4	Potential temperature
52	SIG0	KG/CUM	F9.4	Density

ODV Format

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

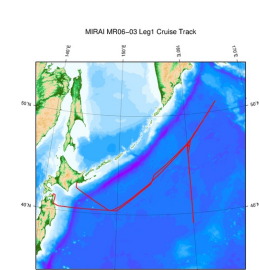
[Ocean Data View \(ODV\)](#)

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

Column No.	Column Heading	Comments
7	Latitude [degrees_north]	LATITUDE
8	Longitude [degrees_east]	LONGITUDE
8	Bot. Depth [m]	Reported depth to bottom.
9	CTDDPT[M]	Depth(Calculate from CTDPRS and LATITUDE)
10	QF	Quality flag for CTD data
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	OXYGEN[UMOL/KG]	Oxygen
24	QF	Quality flags for water samples
25	DWNPRS[DBAR]	Down-cast pressure at the same density of the up-cast CTD data
26	QF	Quality flag for CTD data
27	DWNOXY[UMOL/KG]	Down-cast CTD oxygen at pressure of DWNPRS
28	QF	Quality flag for CTD data
29	FLUOR[UG/L]	Fluorometer
30	QF	Quality flag for CTD data
31	XMISS[%TRANS]	Transmissometer
32	QF	Quality flag for CTD data
33	SILCAT[UMOL/KG]	Silicate
34	QF	Quality flags for water samples
35	NITRAT[UMOL/KG]	Nitrate
36	QF	Quality flags for water samples
37	NITRIT[UMOL/KG]	Nitrite
38	QF	Quality flags for water samples
39	PHSPHT[UMOL/KG]	Phosphate
40	QF	Quality flags for water samples
41	NH4[UMOL/KG]	Ammonium
42	QF	Quality flags for water samples
43	TCARB[UMOL/KG]	Total carbon
44	QF	Quality flags for water samples
45	ALKAL[UMOL/KG]	Total alkalinity
46	QF	Quality flags for water samples
47	PH	pH
48	QF	Quality flags for water samples
49	THETA[DEG C]	Potential temperature
50	QF	Quality flag for CTD data
51	SIG0[KG/CUM]	Density
52	QF	Quality flag for CTD data
53	SAMPNO	Sample number
54	QF	Bottle quality flag

Related Information



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MR06-03 Leg1
Ship Name: MIRAI
Period: 2006-05-26 - 2006-06-18
Chief Scientist: Makio Honda (JAMSTEC)
Project Name: [Station K2,Station KNOT]

Update History

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MIRAI MR06-03 Leg1 Bottle Sampling Water Chemical Analysis

Last Modified: 2017-07-28

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Bottle Sampling Water Chemical Analysis: Processed (PI)

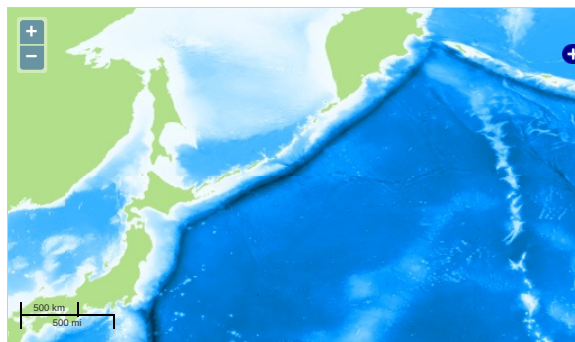
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OCEANS > OCEAN CHEMISTRY > CARBON
OCEANS > OCEAN OPTICS > FLUORESCENCE
OCEANS > OCEAN TEMPERATURE > POTENTIAL TEMPERATURE

Observation Map



Imagery reproduced from ...

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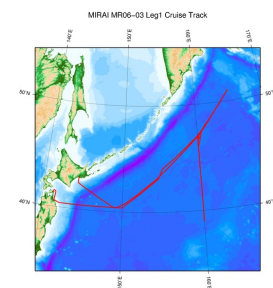
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☐ File names

☐ MR060301_ex_bot.csv

☐ MR060301_odv_bot.txt

Related Information



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Ship Name: MIRAI

Period: 2006-05-26 - 2006-06-18

Chief Scientist: Makio Honda (JAMSTEC)

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