

MIRAI MR00-K08 Bottle Sampling Water Chemical Analysis

Last Modified: 2017-07-28

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Cruise ID: [MR00-K08](#)

Bottle Sampling Water Chemical Analysis: Processed (DMO/PI)

Data Policy: [JAMSTEC](#)

Observation Items: Temperature, Salinity, Dissolved oxygen, Fluorescence, Chlorophyll, Phaeophytin, Silicate, Nitrate, Nitrite, Phosphate, Ammonia, Total inorganic carbon, 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 > SALINITY
OCEANS > OCEAN CHEMISTRY > CHLOROPHYLL
OCEANS > OCEAN TEMPERATURE > WATER TEMPERATURE
OCEANS > SALINITY/DENSITY > SALINITY
OCEANS > OCEAN TEMPERATURE > SEA SURFACE TEMPERATURE
OCEANS > OCEAN CHEMISTRY > CARBON
OCEANS > OCEAN OPTICS > FLUORESCENCE
OCEANS > OCEAN TEMPERATURE > POTENTIAL TEMPERATURE

For Using Data

Principal Investigator

CTDTMP : -
CTDSAL : -
SALNTY : -
CTDOXY : -
OXYGEN : -
FLUOR : -
CHLORA : Kazuhiko Matsumoto (JAMSTEC)
CHLWELSH : Kazuhiko Matsumoto (JAMSTEC)
PPHYTN : Kazuhiko Matsumoto (JAMSTEC)
SILCAT : Kazuhiko Matsumoto (JAMSTEC)
NITRAT : Kazuhiko Matsumoto (JAMSTEC)
NITRIT : Kazuhiko Matsumoto (JAMSTEC)
PHSPHT : Kazuhiko Matsumoto (JAMSTEC)
NH4 : Kazuhiko Matsumoto (JAMSTEC)
TCARBN : Masao Ishii (Meteorological Research Institute)
PH : Masao Ishii (Meteorological Research Institute)

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:
Fluorometer (TURNER DESIGNS)



Notice

Temperature data mesured by a mercury thermometer is listed in CTDTMP 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

Please notice that this data is different from other data in format (pH) and measurement.

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

In many other cruises unit of SILCAT, NITRAT, NITRIT,PHSPHT and NH4 is umol/kg, however in this cruise they are measured in umol/l.

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 : SBE13, Sea-Bird Electronics,Inc.
Measurement range : 0-15ml/l
Accuracy : 0.1ml/l
Resolution : 0.01ml/l

(5) Fluorometer

Model : Seapoint Sensors,Inc.

Information on Chemical and Biological data

1. Dissolved Oxygen

- (1) Instruments:Titrraror:Model 716 DMS Titrimo(Metrohm)
Detector:Pt electrode
(2) Methods :Winkler method/potentiometric method
(3) Precision :0.22umol/kg
(4) Reference Material/Calibration:0.0100N KIO₃ solution/compared standard to CSK standard solution (Wako pure chemical industries, Ltd.)

2. Salinity

- (1) Instruments:Autosal salinometer model 8400B(Guildline Instruments Ltd.)
(2) Methods : -
(3) Precision : -
(4) Reference Material/Calibration:IAPSO Standard Sea Water batch P135(Ocean Scientific International Ltd.)

3. Silicate

- (1) Instruments:TRAACS800 (Bran+Luebbe)
(2) Methods :Molybdenum blue method
(3) Precision : -
(4) Reference Material/Calibration:SiO₂ standard solution (J.T.Baker Chemical Co. LTD)

4. Nitrate

- (1) Instruments:TRAACS800 (Bran+Luebbe)
(2) Methods :Diazotization method
(3) Precision : -
(4) Reference Material/Calibration:KNO₃ solution

5. Nitrite

- (1) Instruments:TRAACS800 (Bran+Luebbe)
(2) Methods :Diazotization method (reduced to nitrite by Cd - Cu tube)
(3) Precision : -
(4) Reference Material/Calibration:NaNO₂ solution

6. Phosphate

- (1) Instruments:TRAACS800 (Bran+Luebbe)
(2) Methods :Molybdenum blue method
(3) Precision : -
(4) Reference Material/Calibration:KH₂PO₄ solution

7. Ammonia

- (1) Instruments:TRAACS800 (Bran+Luebbe)
(2) Methods :gas diffusion method(GDM) (see "Cruise Report")
(3) Precision :The results of the repeat analysis are summarized in the percent of the concentration level in 2-4% (CV%).
(4) Reference Material/Calibration:(NH₄)₂SO₄ solution

8. Total inorganic carbon

- (1) Instruments:automated TCO₂ sampling system (Nippon ANS) equipped with carbon coulometer 5012 (UIC Co.)
(2) Methods :coulometry
(3) Precision : -
(4) Reference Material/Calibration:Na₂CO₃ solution and Reference Seawaters which is traceable to the CRM provided by Dr. Dickson in Scripps Institute of Oceanography

9. pH

- (1) Instruments: -
(2) Methods :spectrophotometry (using a dye(m-cresol purple))
(3) Precision : -

(4) Reference Material/Calibration:total hydrogen ion scale

10. Chlorophyll-a

(1) Instruments:Fluorophotometer model 10-AU-005 (Turner design)

(2) Methods :extract in N,N-dimethylformamide/fluorometric determination (traditional acidification method)

(3) Precision : -

(4) Reference Material/Calibration: -

11. Chlorophyll-a(Welschmeyer method)

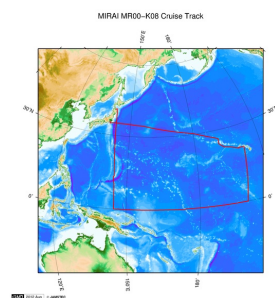
(1) Instruments:Fluorophotometer model 10-AU-005 (Turner design)

(2) Methods :extract in N,N-dimethylformamide /fluorometric determination (Welschmeyer non-acidification method)

(3) Precision : -

(4) Reference Material/Calibration: -

Related Information



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MR00-K08

Ship Name: MIRAI

Period: 2000-12-27 - 2001-02-07

Chief Scientist: Takeshi Kawano (JAMSTEC)

Update History

2017-07-28	An observation data was registerd.
2015-05-29	An observation data was registerd.
2013-08-21	An observation data was registerd.
2013-08-09	An observation data was registerd.
2012-12-25	An observation data was registerd.

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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		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	F8.4	LATITUDE
11	LONGITUDE	DEG	F9.4	LONGITUDE
12	DEPTH	M	I5	Reported depth to bottom.
13	CTDDPT	M	I9	Depth
14	CTDDPT_FLAG_W		I1	Quality flag for CTD data
15	CTDPRS	DBAR	I9	Pressure
16	CTDPRS_FLAG_W		I1	Quality flag for CTD data
17	CTDTMP	ITS-90	F9.3	Temperature
18	CTDTMP_FLAG_W		I1	Quality flag for CTD data
19	CTDSAL	PSS-78	F9.3	CTD Salinity sensor
20	CTDSAL_FLAG_W		I1	Quality flag for CTD data
21	SALNTY	PSS-78	F9.3	Salinity
22	SALNTY_FLAG_W		I1	Quality flags for water samples
23	CTDOXY	UMOL/KG	F9.2	CTD Oxygen sensor
24	CTDOXY_FLAG_W		I1	Quality flag for CTD data
25	OXYGEN	UMOL/KG	F9.2	Oxygen
26	OXYGEN_FLAG_W		I1	Quality flags for water samples
27	FLUOR	UG/L	F9.1	Fluorometer
28	FLUOR_FLAG_W		I1	Quality flag for CTD data
29	CHLORA	MG/CUM	F9.2	Chlorophyll a
30	CHLORA_FLAG_W		I1	Quality flags for water samples
31	CHLWELSH	MG/CUM	F9.2	Chlorophyll a (Welschmeyer method)
32	CHLWELSH_W		I1	Quality flags for water samples
33	PPHYTN	MG/CUM	F9.2	Phaeophytin
34	PPHYTN_FLAG_W		I1	Quality flags for water samples
35	SILCAT	UMOL/L	F9.2	Silicate
36	SILCAT_FLAG_W		I1	Quality flags for water samples
37	NITRAT	UMOL/L	F9.2	Nitrate
38	NITRAT_FLAG_W		I1	Quality flags for water samples
39	NITRIT	UMOL/L	F9.2	Nitrite
40	NITRIT_FLAG_W		I1	Quality flags for water samples
41	PHSPHT	UMOL/L	F9.2	Phosphate
42	PHSPHT_FLAG_W		I1	Quality flags for water samples
43	NH4	UMOL/L	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	PH	-	F9.4	pH
48	PH_FLAG_W		I1	Quality flags for water samples
49	THETA	DEG C	F9.2	Potential temperature
50	SIG0	KG/CUM	F9.2	Density

ODV Format

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

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

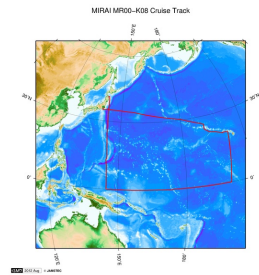
Format Information

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

Column No.	Column Heading	Comments
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	CTDSAL[PSS-78]	CTD Salinity sensor
16	QF	Quality flag for CTD data
17	SALNTY[PSS-78]	Salinity
18	QF	Quality flags for water samples
19	CTDOXY[UMOL/KG]	CTD Oxygen sensor
20	QF	Quality flag for CTD data
21	OXYGEN[UMOL/KG]	Oxygen
22	QF	Quality flags for water samples
23	FLUOR[U/G/L]	Fluorometer
24	QF	Quality flag for CTD data
25	CHLORA[MG/CUM]	Chlorophyll a
26	QF	Quality flags for water samples
27	CHLWELSH[MG/CUM]	Chlorophyll a (Welschmeyer method)
28	QF	Quality flags for water samples
29	PPHYTN[MG/CUM]	Phaeophytin
30	QF	Quality flags for water samples
31	SILCAT[UMOL/L]	Silicate
32	QF	Quality flags for water samples
33	NITRAT[UMOL/L]	Nitrate
34	QF	Quality flags for water samples
35	NITRIT[UMOL/L]	Nitrite
36	QF	Quality flags for water samples
37	PHSPHT[UMOL/L]	Phosphate
38	QF	Quality flags for water samples
39	NH4[UMOL/L]	Ammonium
40	QF	Quality flags for water samples
41	TCARBN[UMOL/KG]	Total carbon
42	QF	Quality flags for water samples
43	PH	pH
44	QF	Quality flags for water samples
45	THETA[DEG C]	Potential temperature
46	QF	Quality flag for CTD data
47	SIG0[KG/CUM]	Density
48	QF	Quality flag for CTD data
49	SAMPNO	Sample number
50	QF	Bottle quality flag

Related Information

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 Period: 2000-12-27 - 2001-02-07
 Chief Scientist: Takeshi Kawano (JAMSTEC)



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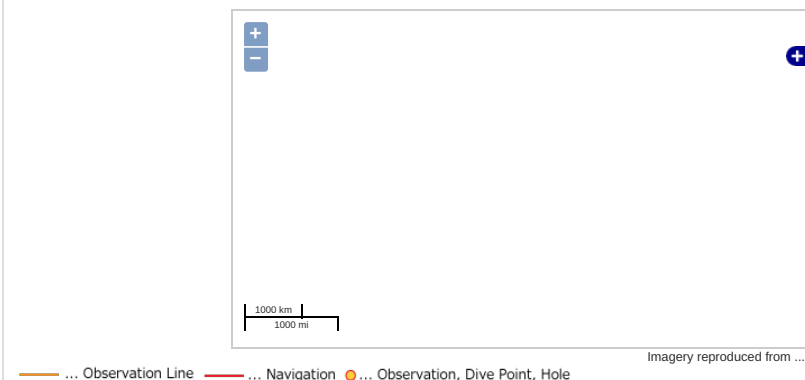
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Observation Map



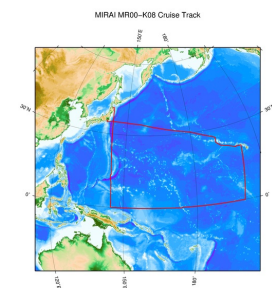
Data List

☐ File names

☐ MR00K0800_ex_bot.csv

☐ MR00K0800_odv_bot.txt

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