

## MIRAI MR02-K05 Leg2 Bottle Sampling Water Chemical Analysis

Last Modified: 2015-05-29

[ReadMe](#) [Observation Data](#) [Data Format](#) [Quality Information](#)

Cruise ID: [MR02-K05 Leg2](#)

Bottle Sampling Water Chemical Analysis: Processed (PI)

Data Policy: [JAMSTEC](#)

Observation Items: Temperature, Salinity, Dissolved oxygen, Silicate, Nitrate, Nitrite, Phosphate, Ammonia, Total inorganic carbon, Alkalinity, 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	> PHOSPHATE
OCEANS > OCEAN CHEMISTRY	> SILICATE
OCEANS > OCEAN CHEMISTRY	> SALINITY
OCEANS > OCEAN TEMPERATURE	> WATER TEMPERATURE
OCEANS > SALINITY/DENSITY	> SALINITY
OCEANS > OCEAN CHEMISTRY	> ALKALINITY
OCEANS > OCEAN CHEMISTRY	> CARBON

Cruise Report

[http://www.godac.jamstec.go.jp/catalog/data/doc\\_catalog/media/MR02-K05\\_leg2\\_all.pdf](http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR02-K05_leg2_all.pdf)

### For Using Data

#### Principal Investigator

CTDTMP : Makio Honda (JAMSTEC)  
 CTDSAL : Makio Honda (JAMSTEC)  
 SALNTY : Makio Honda (JAMSTEC)  
 CTDOXY : Makio Honda (JAMSTEC)  
 OXYGEN : Makio Honda (JAMSTEC)  
 SILCAT : Makio Honda (JAMSTEC)  
 NITRAT : Makio Honda (JAMSTEC)  
 NITRIT : Makio Honda (JAMSTEC)  
 PHSPHT : Makio Honda (JAMSTEC)  
 NH4 : Makio Honda (JAMSTEC)  
 TCARBN : Makio Honda (JAMSTEC)  
 ALKALI : Makio Honda (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



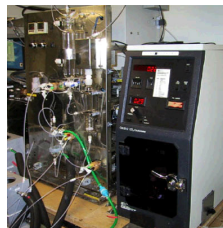
Instrument:

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



Instrument:

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



Instrument:

Titration for total alkalinity ( - MR14-02)



### Notice

The values of silicate and phosphate have systematic errors among cruises, because the analytical methods used for these determinations, and the precision and standards for analysis varied slightly from cruise to cruise. The dataset posted here is "corrected" in a cruise. If you need the corrected data for systematic errors among cruises, please see ["Hydrographic Data at Station K2 and KNOT"](#) . (Available data are station K2 and KNOT data only.)

### Information on CTD data

(1) Temperature sensor

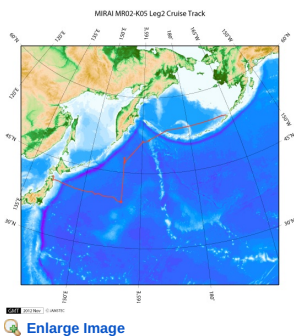
Model: SBE3, Sea-Bird Electronics, Inc.

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 (120% of surface saturation)  
Accuracy: 0.1ml/l (2% of saturation)  
Resolution: 0.01ml/l

Information on Chemical and Biological data

1. Dissolved Oxygen  
(1) Instruments: Titraror : Model 716 DMS Titrimo (Metrohm)  
Detector : Pt electrode  
(2) Methods: Winkler method/potentiometric method  
(3) Precision: 0.13 umol/kg  
(4) Reference Material/Calibration: -
2. Salinity  
(1) Instruments: Autosol salinometer model 8400B (Guildline Instruments Ltd.)  
(2) Methods: -  
(3) Precision: -  
(4) Reference Material/Calibration: IAPSO Standard Sea Water batch P142 (Ocean Scientific International Ltd.)
3. Silicate  
(1) Instruments: TRAACS800 (Bran+Luebbe)  
(2) Methods: Molybdenum blue method  
(3) Precision: C.V. 0.21% (197 uM)  
(4) Reference Material/Calibration: -
4. Nitrate  
(1) Instruments: TRAACS800 (Bran+Luebbe)  
(2) Methods: Diazotization method (reduced to nitrite by Cd-Cu tube)  
(3) Precision: C.V. 0.15% (57 uM)  
(4) Reference Material/Calibration: -
5. Nitrite  
(1) Instruments: TRAACS800 (Bran+Luebbe)  
(2) Methods: Diazotization method  
(3) Precision: 0.30% (1.4 uM)  
(4) Reference Material/Calibration: -
6. Phosphate  
(1) Instruments: TRAACS800 (Bran+Luebbe)  
(2) Methods: Molybdenum blue method  
(3) Precision: C.V. 0.17% (3.5 uM)  
(4) Reference Material/Calibration: -
7. Ammonia  
(1) Instruments: TRAACS800 (Bran+Luebbe)  
(2) Methods: Indophenol method  
(3) Precision: C.V. 0.65% (6.0 uM)  
(4) Reference Material/Calibration: -
8. Total inorganic carbon  
(1) Instruments: the automated TCO<sub>2</sub> analyzer (Nippon ANS Inc.) equipped with carbon coulometer 5012 (UIC Inc.)  
(2) Methods: coulometry  
(3) Precision: 1.5 umol kg<sup>-1</sup>  
(4) Reference Material/Calibration: Na<sub>2</sub>CO<sub>3</sub> solution and the CRM provided by Dr. Dickson in Scripps Institute of Oceanography
9. Total Alkalinity  
(1) Instruments: auto-burette (Radiometer, ABU901), a pH glass electrode (Radiometer, pHG201), a reference electrode (Radiometer, REF201)  
(2) Methods: Modified Gran titration/Closed-cell/potentiometry  
(3) Precision: 2.0 umol kg<sup>-1</sup>  
(4) Reference Material/Calibration: Na<sub>2</sub>CO<sub>3</sub> solution and the CRM provided by Dr. Dickson in Scripps Institute of Oceanography

Related Information



#### MR02-K05 Leg2

Ship Name: MIRAI

Period: 2002-10-11 - 2002-11-06

Chief Scientist: Susumu Honjo (JAMSTEC)

Project Name: [Station K2]

#### Update History

2015-05-29	An observation data was registerd.
2013-08-23	An observation data was registerd.
2012-12-25	An observation data was registerd.

#### JAMSTEC

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#### Information of the Ships

NATSUSHIMA  
KAIYO  
YOKOSUKA  
MIRAI  
KAIREI  
CHIKYU  
KAIMEI  
SHINSEI MARU  
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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Cruise ID:

#### Go to a Dive Information

Dive ID:

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海洋研究開発機構  
JAPAN AGENCY FOR MARINE EARTH SCIENCE AND TECHNOLOGY

## MIRAI MR02-K05 Leg2 Bottle Sampling Water Chemical Analysis

Last Modified: 2015-05-29

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 Cruise ID: [MR02-K05 Leg2](#)

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	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	F9.2	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	SILCAT	UMOL/KG	F9.2	Silicate
28	SILCAT_FLAG_W		I1	Quality flags for water samples
29	NITRAT	UMOL/KG	F9.2	Nitrate
30	NITRAT_FLAG_W		I1	Quality flags for water samples
31	NITRIT	UMOL/KG	F9.2	Nitrite
32	NITRIT_FLAG_W		I1	Quality flags for water samples
33	PHSPHT	UMOL/KG	F9.2	Phosphate
34	PHSPHT_FLAG_W		I1	Quality flags for water samples
35	NH4	UMOL/KG	F9.2	Ammonium
36	NH4_FLAG_W		I1	Quality flags for water samples
37	TCARBN	UMOL/KG	F9.1	Total carbon
38	TCARBN_FLAG_W		I1	Quality flags for water samples
39	ALKALI	UMOL/KG	F9.1	Total alkalinity
40	ALKALI_FLAG_W		I1	Quality flags for water samples
41	SIG0	KG/CUM	F9.4	Density

### ODV Format

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

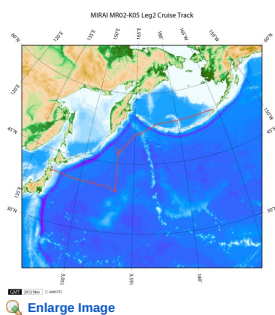
[Ocean Data View \(ODV\)](#)

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	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

Column No.	Column Heading	Comments
19	CTDOX[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	SILCAT[UMOL/KG]	Silicate
24	QF	Quality flags for water samples
25	NITRAT[UMOL/KG]	Nitrate
26	QF	Quality flags for water samples
27	NITRIT[UMOL/KG]	Nitrite
28	QF	Quality flags for water samples
29	PHSPHT[UMOL/KG]	Phosphate
30	QF	Quality flags for water samples
31	NH4[UMOL/KG]	Ammonium
32	QF	Quality flags for water samples
33	TCARBN[UMOL/KG]	Total carbon
34	QF	Quality flags for water samples
35	ALKALI[UMOL/KG]	Total alkalinity
36	QF	Quality flags for water samples
37	SIG0[KG/CUM]	Density
38	QF	Quality flag for CTD data
39	SAMPNO	Sample number
40	QF	Bottle quality flag

#### Related Information



#### MR02-K05 Leg2

Ship Name: MIRAI  
Period: 2002-10-11 - 2002-11-06  
Chief Scientist: Susumu Honjo (JAMSTEC)  
Project Name: [Station K2]

[Enlarge Image](#)

#### Update History

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6K Sonar DEEP TOW  
KM-ROV  
POWER GRAB  
SAMPLER (SHELL)  
POWER GRAB  
SAMPLER (CLOW)  
BMS

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Cruise ID:

#### Go to a Dive Information

Dive ID:

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JAPAN AGENCY FOR MARINE-EARTH SCIENCE AND TECHNOLOGY

国立研究開発法人  
海洋研究開発機構

## MIRAI MR02-K05 Leg2 Bottle Sampling Water Chemical Analysis

Last Modified: 2015-05-29

[ReadMe](#) [Observation Data](#) [Data Format](#) [Quality Information](#)

Cruise ID: [MR02-K05 Leg2](#)

Bottle Sampling Water Chemical Analysis: Processed (PI)

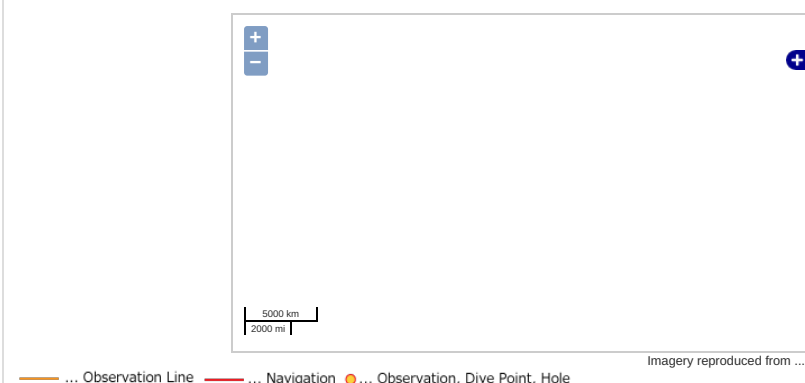
Data Policy: [JAMSTEC](#)

Observation Items: Temperature, Salinity, Dissolved oxygen, Silicate, Nitrate, Nitrite, Phosphate, Ammonia, Total inorganic carbon, Alkalinity, Density

Science Keywords:

OCEANS > OCEAN CHEMISTRY > AMMONIA  
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OCEANS > OCEAN CHEMISTRY > SALINITY  
OCEANS > OCEAN TEMPERATURE > WATER TEMPERATURE  
OCEANS > SALINITY/DENSITY > SALINITY  
OCEANS > OCEAN CHEMISTRY > ALKALINITY  
OCEANS > OCEAN CHEMISTRY > CARBON

### Observation Map



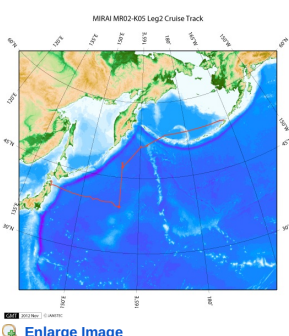
### Data List

☐ File names

☐ MR02K0502\_ex\_bot.csv

☐ MR02K0502\_odv\_bot.txt

### Related Information



#### MR02-K05 Leg2

Ship Name: MIRAI  
Period: 2002-10-11 - 2002-11-06  
Chief Scientist: Susumu Honjo (JAMSTEC)  
Project Name: [Station K2]

### Update History

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#### Information of the Ships

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[KAIYO](#)  
[YOKOSUKA](#)  
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[CHIKYU](#)  
[KAIMEI](#)

#### Information of the Submersibles

[KAIKO](#)  
[SHINKAI 2000](#)  
[SHINKAI 6500](#)  
[DEEP TOW](#)  
[HYPER-DOLPHIN](#)  
[URASHIMA](#)

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#### Go to a Dive Information

Dive ID:

Feeds

SHINSEI MARU  
HAKUHO MARU

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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