

## MIRAI MR00-K06 Bottle Sampling Water Chemical Analysis

Last Modified: 2017-07-28

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

Cruise ID: [MR00-K06](#)

Bottle Sampling Water Chemical Analysis: Processed (DMO)-QCed

Data Policy: [JAMSTEC](#)

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

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 TEMPERATURE > SEA SURFACE TEMPERATURE  
OCEANS > OCEAN CHEMISTRY > ALKALINITY  
OCEANS > OCEAN CHEMISTRY > CARBON  
OCEANS > OCEAN TEMPERATURE > POTENTIAL TEMPERATURE

### [For Using Data](#)

#### Principal Investigator

CTDTMP : Chikashi Kobayashi (JAMSTEC)  
CTDSAL : Chikashi Kobayashi (JAMSTEC)  
SALNTY : -  
CTDOXY : Chikashi Kobayashi (JAMSTEC)  
OXYGEN : -  
SILCAT : Akihiko Murata (JAMSTEC)  
NITRAT : Akihiko Murata (JAMSTEC)  
NITRIT : Akihiko Murata (JAMSTEC)  
PHSPHT : Akihiko Murata (JAMSTEC)  
NH4 : Akihiko Murata (JAMSTEC)  
TCARBN : Akihiko Murata (JAMSTEC)  
ALKALI : Akihiko Murata (JAMSTEC)  
DOC : Akihiko Murata (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)



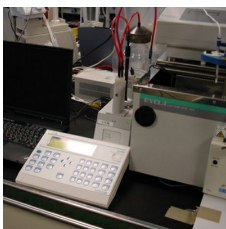
Instrument:

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



Instrument:

Titration for total alkalinity ( - MR14-02)



### Notice

Temperature data meserued 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.

### 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

**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 : 0.97 umol/kg

(4) Reference Material/Calibration : 0.0100N KIO<sub>3</sub> solution/comparison of our KIO<sub>3</sub> standards to CSK standard solution (Wako pure chemical industries, Ltd.)

2. Salinity

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

(2) Methods : -

(3) Precision : -

(4) Reference Material/Calibration : IAPSO Standard Sea Water batch P133 or P136(Ocean Scientific International Ltd.)

3. Silicate

(1) Instruments : TRAACS800 (Bran+Luebbe)

(2) Methods : Molybdenum blue method

(3) Precision : At this repeat analysis range of CV (concentration average to standard deviation) was 0.12 to 0.90 % except for nitrite and ammonia.

(4) Reference Material/Calibration : -

4. Nitrate

(1) Instruments : TRAACS800 (Bran+Luebbe)

(2) Methods : Diazotization method

(3) Precision : At this repeat analysis range of CV (concentration average to standard deviation) was 0.12 to 0.90 % except for nitrite and ammonia.

(4) Reference Material/Calibration : -

5. Nitrite

(1) Instruments : TRAACS800 (Bran+Luebbe)

(2) Methods : Diazotization method (reduced to nitrite by Cd - Cu tube)

(3) Precision : -

(4) Reference Material/Calibration : -

6. Phosphate

(1) Instruments : TRAACS800 (Bran+Luebbe)

(2) Methods : Molybdenum blue method

(3) Precision : At this repeat analysis range of CV (concentration average to standard deviation) was 0.12 to 0.90 % except for nitrite and ammonia.

(4) Reference Material/Calibration : -

7. Ammonia

(1) Instruments : TRAACS800 (Bran+Luebbe)

(2) Methods : Indophenol method

(3) Precision : -

(4) Reference Material/Calibration : -

8. Total inorganic carbon

(1) Instruments : automated TCO<sub>2</sub> sampling system (Nippon ANS.Inc) equipped with carbon coulometer 5012 (UIC Inc.)

(2) Methods : coulometry

(3) Precision : -

(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, pHG201-7), a reference electrode(Radiometer, REF201),

(2) Methods : Modified Gran titration/Open-cell/potentiometry

(3) Precision : the standard deviation of the absolute differences was 2.07 umol/kg

(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

10. DOC

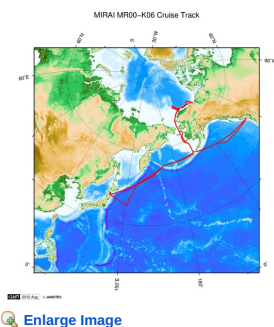
(1) Instruments : -

(2) Methods : -

(3) Precision : -

(4) Reference Material/Calibration : -

## Related Information



### MR00-K06

Ship Name: MIRAI

Period: 2000-08-03 - 2000-10-13

Chief Scientist: Takatoshi Takizawa (JAMSTEC)

Project Name: [Arctic Ocean Climate System Research]

## Update History

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

### JAMSTEC

[Site Policy](#)  
[Privacy Policy](#)  
[Application for Data and Samples](#)  
[Data Policy](#)  
**What's New**  
[Update History](#)  
[Feeds](#)

### Lists

[Publication List](#)  
[Amount of Public Info.](#)  
**Data**  
[Map Search](#)  
[Data Tree](#)  
[Detailed Search](#)

### 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](#)

### Go to a Cruise Information

Cruise ID:

### Go to a Dive Information

Dive ID:

Copyright 2011 Japan Agency for Marine-Earth Science and Technology



**JAMSTEC** 国立研究開発法人  
海洋研究開発機構  
JAPAN AGENCY FOR MARINE-EARTH SCIENCE AND TECHNOLOGY

## MIRAI MR00-K06 Bottle Sampling Water Chemical Analysis

Last Modified: 2017-07-28

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

Cruise ID: **MR00-K06**

Bottle Sampling Water Chemical Analysis: Processed (DMO)-QCed

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		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	F8.4	LATITUDE
11	LONGITUDE	DEG	F9.4	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	F9.1	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	DOC	UMOL/KG	F9.1	Dissolved organic carbon
42	DOC_FLAG_W		I1	Quality flags for water samples
43	THETA	DEG C	F9.4	Potential temperature

### ODV Format

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

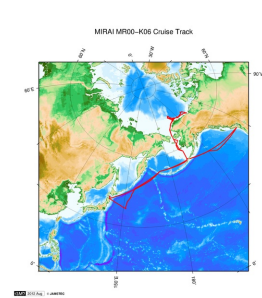
[Ocean Data View \(ODV\)](#)

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

Column No.	Column Heading	Comments
17	SALINITY[PSS-79]	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	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	DOC[UMOL/KG]	Dissolved organic carbon
38	QF	Quality flags for water samples
39	THETA[DEG C]	Potential temperature
40	QF	Quality flag for CTD data
41	SAMPNO	Sample number
42	QF	Bottle quality flag

#### Related Information



[Enlarge Image](#)

#### MR00-K06

Ship Name: MIRAI  
 Period: 2000-08-03 - 2000-10-13  
 Chief Scientist: Takatoshi Takizawa (JAMSTEC)  
 Project Name: [Arctic Ocean Climate System Reaserch]

#### 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.

JAMSTEC  
 Site Policy  
 Privacy Policy  
 Application for Data and Samples  
 Data Policy  
 What's New  
 Update History  
 Feeds

Lists  
 Publication List  
 Amount of Public Info.  
 Data  
 Map Search  
 Data Tree  
 Detailed Search

Information of the Ships  
 NATSUSHIMA  
 KAIYO  
 YOKOSUKA  
 MIRAI  
 KAIREI  
 CHIKYU  
 KAIMEI  
 SHINSEI MARU  
 HAKUHO MARU

Information of the Submersibles  
 KAICO  
 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

#### Go to a Cruise Information

Cruise ID:

#### Go to a Dive Information

Dive ID:

Copyright 2011 Japan Agency for Marine-Earth Science and Technology

 **JAMSTEC** 国立研究開発法人  
 海洋研究開発機構  
 JAPAN AGENCY FOR MARINE-EARTH SCIENCE AND TECHNOLOGY

## MIRAI MR00-K06 Bottle Sampling Water Chemical Analysis

Last Modified: 2017-07-28

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

Cruise ID: [MR00-K06](#)

Bottle Sampling Water Chemical Analysis: Processed (DMO)-QCed

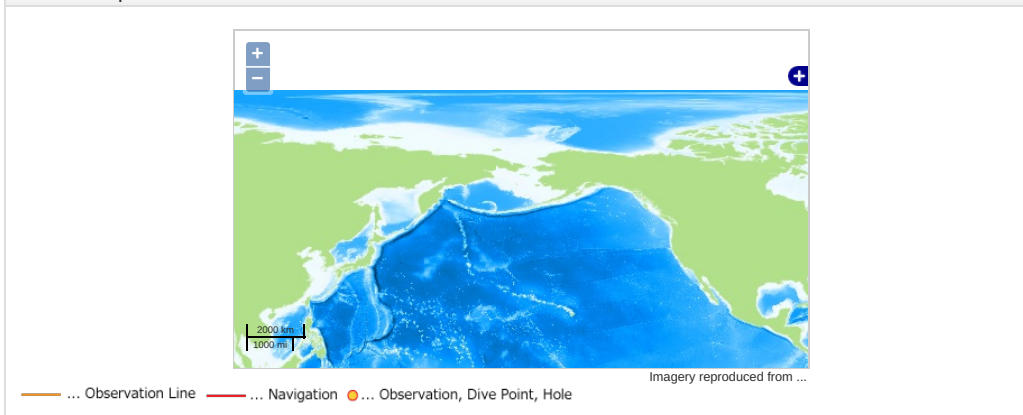
Data Policy: [JAMSTEC](#)

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

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 TEMPERATURE > SEA SURFACE TEMPERATURE  
OCEANS > OCEAN CHEMISTRY > ALKALINITY  
OCEANS > OCEAN CHEMISTRY > CARBON  
OCEANS > OCEAN TEMPERATURE > POTENTIAL TEMPERATURE

### Observation Map



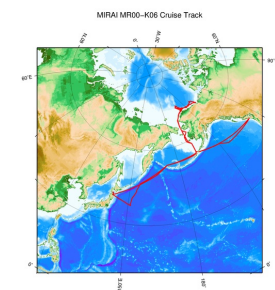
### Data List

☐ File names

☐ MR00K0600\_ex\_bot.csv

☐ MR00K0600\_odv\_bot.txt

### Related Information



[Enlarge Image](#)

#### MR00-K06

Ship Name: MIRAI

Period: 2000-08-03 - 2000-10-13

Chief Scientist: Takatoshi Takizawa (JAMSTEC)

Project Name: [Arctic Ocean Climate System Reaserch]

### 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.

[Privacy Policy](#)  
[Application for Data and Samples](#)  
[Data Policy](#)  
  
[What's New](#)  
[Update History](#)  
[Feeds](#)

[Amount of Public Info.](#)  
  
[Data](#)  
[Map Search](#)  
[Data Tree](#)  
[Detailed Search](#)

[KAIYO](#)  
[YOKOSUKA](#)  
[MIRAI](#)  
[KAIREI](#)  
[CHIKYU](#)  
[KAIMEI](#)  
[SHINSEI MARU](#)  
[HAKUHO MARU](#)

[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](#)

Cruise ID:

[Go to a Dive Information](#)

Dive ID:

Copyright 2011 Japan Agency for Marine-Earth Science and Technology



**JAMSTEC** 国立研究開発法人  
海洋研究開発機構  
JAPAN AGENCY FOR MARINE-EARTH SCIENCE AND TECHNOLOGY