

## MIRAI MR05-04 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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

Cruise ID: [MR05-04](#)

Conductivity-Temperature-Depth Profiler (CTD): Processed (DMO)-QCed

Data Policy: [JAMSTEC](#)

Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

Science Keywords:

OCEANS > OCEAN CHEMISTRY > OXYGEN  
OCEANS > OCEAN TEMPERATURE > WATER TEMPERATURE  
OCEANS > SALINITY/DENSITY > SALINITY

Cruise Report

[http://www.godac.jamstec.go.jp/catalog/data/doc\\_catalog/media/MR05-04\\_all.pdf](http://www.godac.jamstec.go.jp/catalog/data/doc_catalog/media/MR05-04_all.pdf)

### For Using Data

#### Principal Investigator

Data Management Office

#### Use Constraints

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

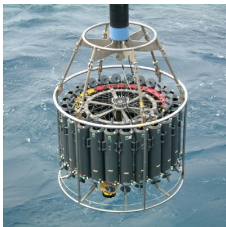
#### Data Citation

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

### Instrument

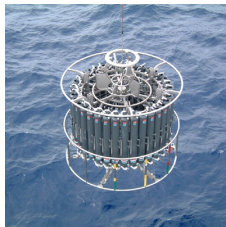
Instrument:

Water sampling system with CTD (30  
litters \* 24 bottles)



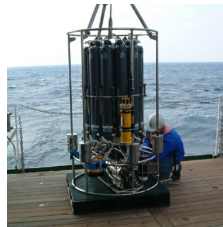
Instrument:

Water sampling system with CTD (12  
litters \* 36 bottles)



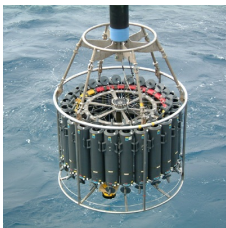
Instrument:

Water sampling system with CTD (12  
litters \* 12 bottles)



Instrument:

Conductivity temperature depth  
measurements (CTD)



### Overview

CTD(Conductivity-Temperature-Depth profiler) is used to observe the vertical profiles of temperature and conductivity.

Usually, this system is operated with multicylinder water sampler.

Observed signal is transmitted from sensor to the operation room on board using wire cable, and electric power is supplied from vessel to sensor.

Details of sensors attached to CTD system for MR05-04 cruise are presented in "System".

The following software, developed and supplied by the Sea-Bird Electronics, Inc., was used in MR05-04.

SEASAVE(ver 5.27b) for data acquisition

SEASOFT(ver 5.27b) for data processing

Data presented on this website is averaged over 1db.

### System

#### • Pressure sensor

Model : SBE9plus, Sea-Bird Electronics, Inc.

Serial number : 79492

Measurement range : up to 10500m

Accuracy : 0.015% F.S.

Resolution : 0.001% F.S.

#### • Temperature sensor

Model : SBE3, Sea-Bird Electronics, Inc.

Serial number : 031359

Measurement range : -5.0 to +35degC

Accuracy : 0.001degC

Resolution : 0.0002degC

#### • Salinity sensor

Model : SBE4, Sea-Bird Electronics, Inc.

Serial number : 042240

Measurement range : 0.0 to 7 S/m

Accuracy : 0.0003 S/m

Resolution : 0.00004 S/m

- DO sensor

Model : SBE43, Sea-Bird Electronics, Inc.  
Serial number : 430205  
Measurement range : 120% of surface saturation  
Accuracy : 2% of saturation

Sensors used in each cast is as follows.

Cast name	Serial number of sensor			
	Pressure	Temperature	Salinity	Dissolved Oxygen
KNTM01	79492	031359	042240	430205
KNTM02	79492	031359	042240	430205
KNTM03	79492	031359	042240	430205
K03M01	79492	031359	042240	430205
K03M02	79492	031359	042240	430205
K03M03	79492	031359	042240	430205
K02M01	79492	031359	042240	430205
K02M02	79492	031359	042240	430205
K02M03	79492	031359	042240	430205
K02M04	79492	031359	042240	430205
K02M05	79492	031359	042240	430205
K01M01	79492	031359	042240	430205
K01M02	79492	031359	042240	430205
K01M03	79492	031359	042240	430205
EW0M01	79492	031359	042240	430205
EW0M02	79492	031359	042240	430205
EW1M01	79492	031359	042240	430205
EW1M02	79492	031359	042240	430205
EW1M03	79492	031359	042240	430205
EW2M01	79492	031359	042240	430205
EW2M02	79492	031359	042240	430205
EW3M01	79492	031359	042240	430205
EW3M02	79492	031359	042240	430205
EW4M01	79492	031359	042240	430205
EW4M02	79492	031359	042240	430205
EW4M03	79492	031359	042240	430205
EW5M01	79492	031359	042240	430205
EW7M01	79492	031359	042240	430205
EW7M02	79492	031359	042240	430205
EW7M03	79492	031359	042240	430205
OSPM01	79492	031359	042240	430205
OSPM02	79492	031359	042240	430205
OSPM03	79492	031359	042240	430205

#### Calibration Information

Calibration Information is as follows.

[Calibration Information](#)

#### Data processing

(1) Data processing sequence for SEASOFT is as follows;

command	function
datcnv	Convert raw data to engineering units, and store converted data in file.
alignctd	Align data relative to pressure(typically used for conductivity, temperature, and oxygen).
wildedit	Mark a data value with badflag to eliminate wild points.
celltm	Perform conductivity thermal mass correction.
filter	Low-pass filter columns of data.
wfilter	Median filter removes spikes of fluorometer data.
section	Extract rows of data from file.
loopedit	Mark a scan with badflag if scan fails pressure reversal or minimum velocity tests.
derive	Calculate oxygen. (with oxygen sensor)
binavg	Average data, basing bins on pressure, depth, scan number, or time range.
derive	Calculate salinity, density, etc..
split	Split data in file into upcast and downcast files.

(2) Quality control

QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure.

- 1) The gradient check of adjacent depth data
- 2) The density inversion check
- 3) The broad range check set up at given ocean space and depth

Please see the site of NODC of the following link for quality control procedure in detail.

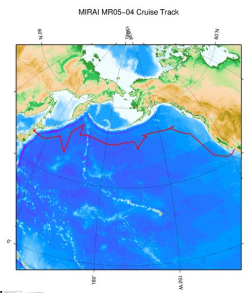
[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

In addition, an abnormal value is identified by a visual check, and the data after visual QC is released.

#### Note

- (1) In this cruise, there is extra data (fluorescence intensity, transmittance, distance to bottom) in additional to temperature, salinity, dissolved oxygen that has been opened to the public. Please contact us from "Contact Us" above if necessary.

#### Related Information



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#### MR05-04

Ship Name: MIRAI  
Period: 2005-09-13 - 2005-10-27  
Chief Scientist: Makio Honda (JAMSTEC)  
Project Name: [Station K2, Station KNOT]

#### Update History

2017-06-22	An observation data was registerd.
2014-07-26	An observation data was registerd.
2014-02-07	An observation data was registerd.
2013-03-27	An observation data was registerd.
2012-11-25	An observation data was registerd.

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## MIRAI MR05-04 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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 Cruise ID: [MR05-04](#)

Conductivity-Temperature-Depth Profiler (CTD): Processed (DMO)-QCed

 Data Policy: [JAMSTEC](#)

### CTD DMO

#### Format Description for the Corrected Data

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](#)

Data in following cruise is not expressed with Exchange Format. Please see the site of each cruise for format.

MR02-K05 Leg1

MR04-05

#### Format Description for the QCed Data

Each data file contains one line header (meta data) followed by data lines for each cast.

The number of data lines are recorded in the header.

Header part

No.	Column	Content	Format	Remarks
1	1	Header ID	a1	fixed as '#'
2	3 - 6	Data ID	a4	CTD
3	8 - 22	Cruise ID	a15	MYYY-(K)XX(_legx)
4	24 - 31	Cast name	a8	
5	33 - 40	Date	i8	YYYYMMDD (UTC)
6	42 - 45	Time	i4	hhmm (UTC)
7	47 - 55	Latitude	i2,a1,f5.2,a1	dd-mm.mmN(S)
8	57 - 66	Longitude	i3,a1,f5.2,a1	ddd-mm.mmE(W)
9	68 - 71	Number of data lines	i4	
10	72 - 73	Terminator	-	CR+LF

Data part

No.	Column	Content	Unit	Format	Remarks
1	1 - 11	Pressure	dbar	f11.3	
2	12 - 22	Temperature	deg-C	f11.4	ITS-90
3	23 - 33	Salinity	PSU	f11.4	PSS-78
4	34 - 44	Dissolved oxygen	umol/kg	f11.3	
5	45 - 55	Flag	-	i11	1 - 7 : space 8 : flag of pressure 9 : flag of temperature 10 : flag of salinity 11 : flag of dissolved oxygen * reference : <a href="#">Definition of Quality Control Flags</a>
6	56 - 57	Terminator	-	-	CR+LF

Each contents of the data part is stored in 11 bytes.

Missing value is presented by '-5', and error value is presented by '-9'.

#### Definition of Quality Control Flags

##### 1. Depth Flags

- 0 - accepted value
- 1 - error in recorded depth ( same or less than previous depth )
- 2 - density inversion

##### 2. Observed Level Flags

- N - missing value
- 0 - accepted value
- 1 - range outlier ( outside of broad range check )
- 2 - failed inversion check
- 3 - failed gradient check
- 4 - zero anomaly
- 5 - failed combined gradient and inversion checks
- 6 - failed range and inversion checks
- 7 - failed range and gradient checks
- 8 - failed range and zero anomaly checks
- 9 - failed range and combined gradient and inversion checks
- A - failed visual check

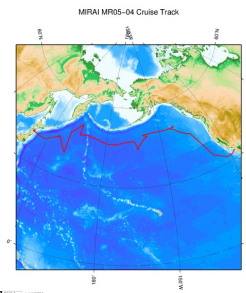
QCed data were added flag according to the NODC (National Oceanographic Data Center) quality control procedure, additionally visually checked. Please see the site of NODC of the following link for quality control procedure.

[QUALITY CONTROL AND PROCESSING OF HISTORICAL OCEANOGRAPHIC TEMPERATURE, SALINITY, AND OXYGEN DATA](#)

#### Sample Program

[ex\\_read2.f](#)

#### Related Information



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#### MR05-04

Ship Name: MIRAI

Period: 2005-09-13 - 2005-10-27

Chief Scientist: Makio Honda (JAMSTEC)

Project Name: [Station K2, Station KNOT]

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## MIRAI MR05-04 Conductivity-Temperature-Depth Profiler (CTD)

Last Modified: 2017-06-22

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Cruise ID: **MR05-04**

Conductivity-Temperature-Depth Profiler (CTD): Processed (DMO)-QCed

Data Policy: **JAMSTEC**

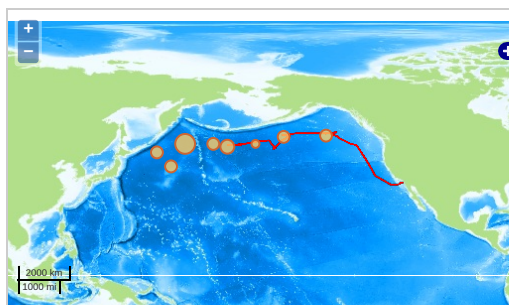
Observation Items: Pressure, Temperature, Salinity, Dissolved oxygen

Science Keywords:

OCEANS > OCEAN CHEMISTRY > OXYGEN  
OCEANS > OCEAN > WATER  
TEMPERATURE TEMPERATURE  
OCEANS > SALINITY/DENSITY > SALINITY

### Observation Map

1. Clicking the icon displays a balloon with observation information.
2. Then click the observation name, figures will be displayed.



— ... Observation Line — ... Navigation ● ... Observation, Dive Point, Hole

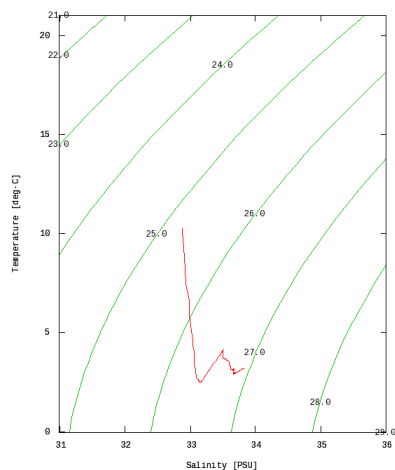
Imagery reproduced from ...

### Figures

EW0M01



MR05-04: EW0M01  
Conductivity-Temperature-Depth Profiler (CTD): Salinity



Only values evaluated as "good : all flags are 0" are plotted in profiles.  
Please see Format Page for the definition of quality flags.

### Data List

[Add to Basket](#)


#### File names

<input type="checkbox"/>	EW0M01.dat
<input type="checkbox"/>	EW0M02.dat
<input type="checkbox"/>	EW1M01.dat
<input type="checkbox"/>	EW1M02.dat
<input type="checkbox"/>	EW1M03.dat
<input type="checkbox"/>	EW2M01.dat
<input type="checkbox"/>	EW2M02.dat
<input type="checkbox"/>	EW3M01.dat
<input type="checkbox"/>	EW3M02.dat
<input type="checkbox"/>	EW4M01.dat
<input type="checkbox"/>	EW4M02.dat
<input type="checkbox"/>	EW4M03.dat
<input type="checkbox"/>	EW5M01.dat


 EW7M01.dat


 EW7M02.dat


 EW7M03.dat


 K01M01.dat


 K01M02.dat

 K01M03.dat


 K02M01.dat

 K02M02.dat


 K02M03.dat

 K02M04.dat

 K02M05.dat

 K03M01.dat

 K03M02.dat

 K03M03.dat


 KNTM01.dat

 KNTM02.dat

 KNTM03.dat

 OSPM01.dat

 OSPM02.dat

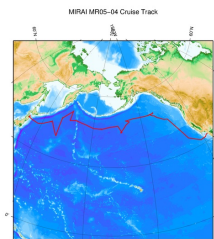
 OSPM03.dat

 ex\_read2.f (Sample Program)

- Observation List  
The list of observation is shown as follows.

Observation	Time and Date	Lat. [°]	Lon. [°]
EW0M01	2005-09-29 12:33	47.0035	165.0000
EW0M02	2005-09-29 14:01	47.0003	164.9910
EW1M01	2005-09-30 16:26	47.6496	169.2780
EW1M02	2005-09-30 20:49	47.6676	169.2561
EW1M03	2005-10-01 01:09	47.6483	169.2610
EW2M01	2005-10-02 19:50	46.9990	174.9988
EW2M02	2005-10-02 21:27	47.0216	174.9708
EW3M01	2005-10-03 16:32	45.9988	-179.9973
EW3M02	2005-10-03 18:22	46.0086	179.9593
EW4M01	2005-10-05 19:22	46.0021	-175.0168
EW4M02	2005-10-06 00:54	46.0006	-174.9985
EW4M03	2005-10-06 15:53	45.9976	-174.9991
EW5M01	2005-10-08 09:45	47.0005	-170.0023
EW7M01	2005-10-12 20:23	49.4983	-160.0040
EW7M02	2005-10-12 22:02	49.5035	-160.0128
EW7M03	2005-10-13 00:23	49.5136	-160.0153
K01M01	2005-09-27 16:51	51.0035	164.9996
K01M02	2005-09-27 19:01	50.9965	165.0075
K01M03	2005-09-28 02:02	51.0021	164.9933
K02M01	2005-09-22 04:24	46.9733	159.9593
K02M02	2005-09-24 17:23	47.0070	159.9700
K02M03	2005-09-24 20:55	47.1181	160.1766
K02M04	2005-09-26 05:03	47.0776	160.1973
K02M05	2005-09-26 06:55	47.0775	160.1976
K03M01	2005-09-19 17:24	39.0000	160.0011
K03M02	2005-09-19 19:55	39.0256	160.0013
K03M03	2005-09-20 01:59	39.0430	160.0461
KNTM01	2005-09-16 23:49	43.9858	154.9930
KNTM02	2005-09-17 01:09	44.0000	154.9986
KNTM03	2005-09-17 03:00	44.0066	155.0078
OSPM01	2005-10-17 20:45	49.9396	-144.9478
OSPM02	2005-10-17 23:26	49.9058	-144.8935
OSPM03	2005-10-18 00:55	49.9020	-144.8908

#### Related Information



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**MR05-04**  
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Period: 2005-09-13 - 2005-10-27  
Chief Scientist: Makio Honda (JAMSTEC)  
Project Name: [Station K2, Station KNOT]

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